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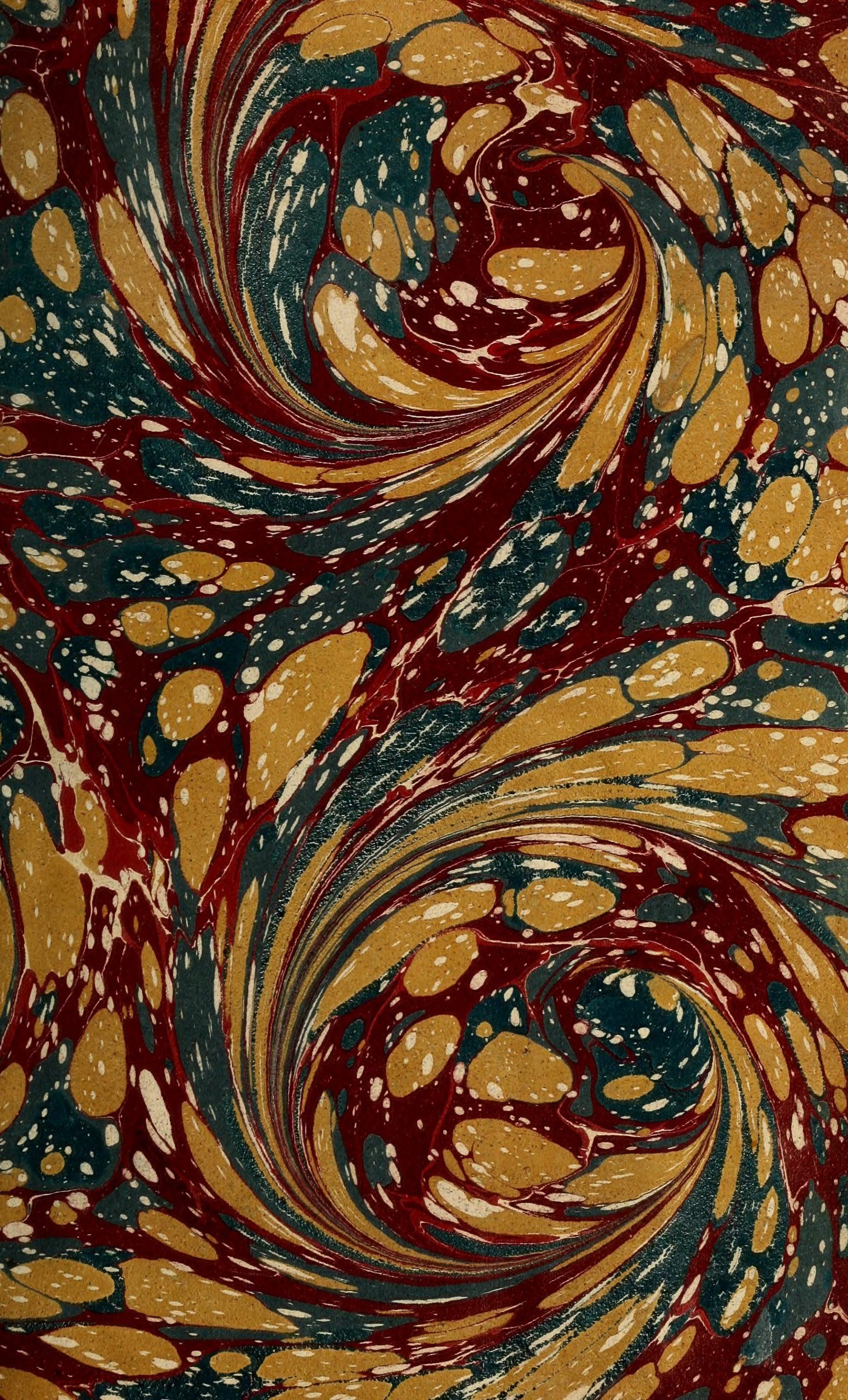

Edward S. Marshall

1889

THE

PHYTOLOGIST.

A BOTANICAL JOURNAL.

HEB DDUW * HEB DDIM

EDITED BY

ALEXANDER IRVINE,

FELLOW OF THE BOTANICAL SOCIETY OF LONDON.

VOLUME THE FIRST.

> Ὡς ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—πάντα ἐν σοφίᾳ ἐποίησας.
> ΨΑΛΜ. ργ΄. 24.
>
> Benedicite universa germinantia in terra Domino; laudate et superexaltate Eum in secula.—*Hymn iii Pueror. v.* 6.

LONDON:
WILLIAM PAMPLIN, 45, FRITH STREET, SOHO SQUARE.
1855–56.

PRINTED BY
JOHN EDWARD TAYLOR, LITTLE QUEEN STREET,
LINCOLN'S INN FIELDS.

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PREFACE.

The 'Phytologist' was commenced in June, 1842, and has regularly appeared as a monthly periodical, with the exception of several months when it was in abeyance on account of the demise of its former Editor, Mr. Luxford. It was originally established with the view of recording and circulating facts and opinions, chiefly in reference to British Botany; and it has, during the long period of fourteen years and a half, been the general receptacle of most discoveries, observations, and views which are in any way connected with the vegetation of the British Islands. It is *now* an immense repository of both botanical facts and views.

It would be superfluous to offer any statement of the principles on which this periodical is conducted. These have already been recorded in the first number of the New Series, and to that those wishing information on this point are referred.

The 'Phytologist' is still devoted to the progress of British Botany. Heretofore it has been almost the sole vehicle for the circulation of information on this subject, a medium which Botanists have employed for mutual communications, and for the conveyance of knowledge to all who desire to become acquainted with this most interesting subject. The Contents prefixed to the present Volume, and the General Index of subjects with which it is concluded, will serve to show the nature and value of this Botanical Journal, as a register of discoveries in the science of British Botany.

ERRATA.

Page 12, 7th line from bottom, *for* pontaneous *read* spontaneous.
Page 138, 8th line from bottom, *for* Loudon's encyclopædia *read* Loudon's Encyclopædia.
Page 138, 6th line from bottom, *for* J. Tillard *read* J. Tilliard.
Page 251, 15th line from bottom, *for* hors *read* hers.
Page 279, 10th and 12th lines from top, *for* Ramains *read* Ramsins.
Page 297, 10th line from bottom, *for* Cistopteris *read* Cystopteris.
Page 391, 13th line from bottom, *for* Neottia æstivalis *read* Neottia autumnalis.
Page 454, 17th line from bottom, *for* and *read* in.

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THE PHYTOLOGIST.

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Address to the Contributors, Correspondents, and Readers of the PHYTOLOGIST; *by the* EDITORS.

THIS periodical, the only one devoted to the investigation of British plants, has been in abeyance since the demise of Mr. Luxford, in June, 1854. This lamented event postponed the publication of our journal, till new arrangements could be made for its continuation. These being now completed, the Editors, in deference to their friends and the public in general, beg to lay before them the principles which they will henceforth carry out in the conduct of this publication, and hope, by a strict adherence to these, to maintain the reputation of the 'Phytologist,' and to obtain such support as may enable them to render it subservient to the progress of science. The 'Phytologist' will, as formerly, be the medium of supplying the botanist with a record of the progress of British Botany,—1. By publishing accounts or notes of botanical tours. 2. By a series of articles on the *habitats* and the *range*, both horizontal and altitudinal, of the British species. 3. By a series of articles on the periodic phenomena of species,—*e. g.* as annuals, biennials, and perennials, times of flowering, maturation, and such-like. 4. Notes on critical plants, varieties, newly observed localities, etc. etc. 5. Articles on nomenclature, scientific and popular names, and classification. 6. Abstracts of the progress of Botany during the month. 7. Current intelligence, notices of publications, reviews, etc. 8. Proceedings of societies. 9. Botanical notes and queries, with replies to the latter.

As an essential and attractive feature of this new series of the 'Phytologist,' arrangements have been made for supplying, with every number, *one* sheet, or half a sheet at least, of descriptive British Botany, with distinct independent pagination, which, when completed, will form a portable Flora. A brief view of the nature and objects of this part of the 'Phytologist,' or rather adjunct to it, will be desirable. The descriptions of the orders and genera of our native species will be rather more extended than in any existing portable English work of this kind; and the diction will be as plain and concise as the subject will admit. The orders will be illustrated by a cut of some well known or easily recognized plant of the described order.

The specific descriptions will of course vary in length. Where the plant can be easily distinguished from its kindred species, the description will be short; where it is otherwise, the description will be enlarged. Again, the description will be systematic, *i. e.* the characters of the organs will be arranged according to their importance in the economy of vegetation, and invariably described in that order in the families, the genera, and the species.

The statistics of the plant, also its range and altitudes, will be quoted from the CYBELE BRITANNICA, with the kind permission of the learned author of this valuable work.

Finally, a glossarial index will be prepared, explanatory of every scientific term or phrase, the etymology and explanation of every specific, generic, and ordinal term; thus supplying the British botanist with a complete apparatus for the identification and study of all the phænogamous species occurring in these islands.

From our contributors we solicit articles on the following subjects. 1. Local botany; and under this head we request information on the following points:—*a*, the number of species in a certain defined district, comprehending the nature of the soil, the altitude, and the exposure; *b*, the rarer species, with their apparent statistics, their range both horizontal and vertical; *c*, the introduced species, or recently observed plants; *d*, abnormal or metamorphosed forms, varieties, etc. 2. Papers on the flowering of species, the leafing of trees, effects of temperature on vegetation, maturation, and decay. 3. On new localities of rare plants, or reappearance of plants in localities where they had disappeared. 4. Monographs of British genera; *Potamogeton*, for example. 5. On critical plants—*Hieracia, Rubi, Salices*, etc.

To our kind correspondents and readers generally we look for such suggestions as may have a tendency to enhance the interest and extend the utility of the 'Phytologist.' Our desire is to render the work instructive; to make it not only a record of progress, but also a leader to guide the uninitiated into the method of observing the aspects of nature for themselves; that from the phenomena of vegetation they may deduce the principles of its varied economy.

Having now laid before our readers and the public our programme, we next offer an exposition of our personal principles, and employ the old classical adage, *nullius addictus jurare in verba magistri*. We are unbiassed by the views of particular schools, scientific coteries, and the like, and hence we call no man our master. Again, as truth is our object, we will not be influenced by authority, however eminent, to swerve from verity. On the other hand, we will sedulously avoid giving any cause of offence to our collaborateurs in the great cause of science. Our aim will be to disseminate scientific information, to publish facts or legitimate inferences from facts, and to avoid all needless disputes, personal squabbles, sectarian peculiarities, and the like.

We also profess to ignore all theories and hypotheses whatever. We believe that the sphere of a genuine naturalist is *limited* to facts. History is a record of real occurrences. Natural history we believe is also a record of real occurrences, a series of recorded observations of natural phenomena. We do not exclude explanations of these facts, for we wish to comprehend all causes, both primary and secondary, remote and proximate. When these are attainable, we think them worth investigating.

"Felix qui potuit rerum cognoscere causas,
Fortunatus et ille qui deos novit agrestes."

But the investigation of causes we leave to the more elaborate contemporaneous publications. We will communicate facts, state our own experience, and we invite our correspondents to do the same, in the simplest manner, avoiding refinements and speculations. In preparing lists of plants, we beg to submit the following plan. First, let a few sheets of paper be folded into a size convenient for the pocket, with appropriate headings, indicative of the soil, the habitats, and the elevation. For example—fields, where the country is cultivated; also bogs, woods, heaths, rocks, river-sides, etc., as the case may be. Instead of entering the names of species, it would be sufficient to enter the numbers in the London Catalogue, a copy of which should always be the botanist's concomitant, if he wishes to make his observations subservient to the advancement of local geographical botany. Rare plants will always be specially recorded. The memory is generally sufficient to retain their localities. But information is also desirable in reference to the statistics of plants supposed to be universally distributed. For this purpose the *vasculum* is not so convenient a medium as the note-book of the field-naturalist. The note-book and the vasculum together would supply all that is necessary for drawing up a a valuable account of the statistics and distribution of the species. We have in this number given a sample of notes and queries, to which we request our readers' attention. We would also suggest to our correspondents to let us have either an abstract or copy, when short, of any interesting notices of facts and occurrences which they may notice in the current literature of the day, especially from the daily and weekly papers, magazines, and such sources. If this should be thought too onerous for our readers, we would gladly receive notices informing us where such incidental facts are to be found.

Our purpose is to make the 'Phytologist' as useful as possible; and we hope to extend its usefulness, not solely by making its pages a faithful record of the progress of British Botany, but by supplying to those who are occupied or interested in the great business of education, an additional means of enlarging and exercising the perceptive, the combinative, and judging faculties of the human mind.

An account of Localities of some of the rarer British Plants and others noticed in North Wales by Mr. Pamplin *and* Mr. Irvine, *in September,* 1854.

Our tour, which was pedestrian in the strictest sense, began at Oswestry. We left London on the morning of the 12th, and reached Shrewsbury in time to look at the notabilities of that celebrated town. We left by an early train for Oswestry, which we reached between eight and nine o'clock A.M. There was nothing to detain us here. The historical recollections of Oswestry are interesting, but we had neither time nor means of satisfactorily visiting the scene of the memorable battle fought between the Christian king of Northumbria, Oswald, and the pagan king of Mercia, Penda. The victorious pagan, not contented with his conquest, caused, it is said, the body of his vanquished enemy Oswald to be cut in pieces and stuck on poles as trophies of his victory. Oswestry derived its name from this event. *Tre* or *tref*, in Welsh, is a home or town. This ancient town became Oswald's long home or final resting-place. We have heard another etymology, viz. that as the dead body of Oswald was suspended from a *tree*, this object became famous in after-ages, like the Rufus-oak in the New Forest; and as the Christian king was celebrated for sanctity, a religious house was built near the spot,—hence the town and its name. Before commencing the detail of botanical objects noticed conjunctly, we beg to introduce the following within inverted commas, which was observed by one of us separately in the previous July.

"Almost the first thing that attracted our attention was an extraordinary quantity of *Fumaria capreolata*, which completely covered the ground, climbing up and over a newly planted hedge for about half a mile together before you enter Oswestry from Chirk and Gobowen by the road; the beautiful appearance and delicate habit of the plant were quite striking, and I am persuaded it might be introduced to suitable situations in gardens with advantage. Hereabouts also the *Linaria Cymbalaria* is perfectly and evidently an aboriginal, growing for miles along the hedge-banks, as well as on walls and farm buildings; this is also the case in several parts of North Wales, especially in and about Dolgelly, where it is very ornamental. It would be difficult to conceive how any botanist that had seen it as about *Oswestry*, etc., should hesitate to admit it as an original native. It is true, Ray and other old authors do not notice the plant, and it may be said that it is a plant so conspicuous as not likely to have been overlooked; yet its abundance and its so general distribution in certain districts seem to negative its recent introduction. There is a very rich and well cultivated country all about Oswestry, Llansyllin, etc. I had not much opportunity of gathering plants; noticed *Epipactis latifolia* between the two places, and an immense one just entering the county Montgomery."

Oswestry church is remarkable for two things: the first is its great breadth; we did not however measure it, but it is a very large church. The second thing connected with this sacred edifice, and more interesting to botanical tourists, is a growth of Yews on the ledges, gutters, roof, and walls of the building,—everywhere except on the doors and windows. The tower had especially a large crop of this funereal tree. These Yews were of various sizes, from a few inches to a few feet high. Here it may be recorded that Meivod church produces a large crop of Ash-trees, which have found a locality, even here, for their partial development. All plants growing on artificial erections are not on this account to be deemed *pseudo-British.* Neither the *Yews* of Oswestry church nor the *Ashes* of Meivod were introduced into their present localities by human agency. But, even if they were so, they are likely to endure as long as the erections on which they grow. Hedge-plants are not justly to be branded as aliens because they grow in hedges. Our commonest hedging stuff is not only planted, but raised in nurseries; but Hawthorn, Holly, and Yew are not on that score denied a place in our catalogues of British plants. But *Lonicera Xylosteum* and many other species are excluded, because they grow only in places where they *might* have been planted, and probably were planted.

We started from Oswestry for Llansanfraid about nine o'clock on the morning of the 13th, and as there had been a rather heavy shower the previous night, the walking was very agreeable; dust, the usual concomitant of pedestrians, never annoyed us in Wales as it often does in England. On the left side of the road to the above-named place, on the very skirts of Oswestry, we observed a profusion of *Anchusa sempervirens* (Evergreen Alkanet), enough to supply all the botanists of England with specimens, and to leave some for future supply. This plant, we believe, never occurs but near or close to human dwellings. We saw it at Cuxton, near Strood, in Kent, in 1841, in a station mentioned by Ray; and we have seen it in Reigate churchyard, as stated by Luxford in his 'Reigate Flora.' There are many British plants which evince this preference for nitrogenized soils, viz. the *Greater Celandine, Borage,* and even the common *Nettle, Good King Henry,* several *Docks,* and the *Greater Plantain.* The claim of these latter to rank among British plants has never been questioned. *Alkanet* and *Borage* are considered as doubtful natives of England. We will not, in this place, vindicate their nativity; we have seen the plants in question growing where they were neither sown nor planted, at least by human agency. About half a mile from the town, on both sides of the road, but especially on the left side, we saw many tufts or clusters of *Colchicum autumnale* (Meadow Saffron). This plant is more common in the west of England than anywhere else, yet it is recorded as found in Suffolk. We believe, from our observation, that if a meridional line were drawn through the centre of England, cutting Oxfordshire, Warwickshire, and Yorkshire, etc., more stations of *Colchicum autumnale* will be found on the western side of the line than on the eastern. We have seen it in great plenty in Gloucestershire, between the Severn and the Wye. We observed *Papaver dubium, Chelidonium majus, Chenopodium Bonus-Henricus,* and *Corydalis claviculata,* before we reached the confines of Montgomeryshire, where we entered North Wales. Here, as we believed, on the very line separating the two ancient kingdoms,—for in the British and Anglo-Saxon times they formed two kingdoms, as they now are inhabited by two distinct races,—we observed a gigantic *Clematis* attached to a shrub (Alder?), which it, the *Clematis,* very much exceeded both in diameter and height. We have seen on the Surrey hills, especially where the stem sank down through the brambles by which it was originally supported, some stems of considerable thickness, viz. a few inches; but this solitary one observed in Wales was at least five or six inches in diameter and nearly erect. Mr. Pamplin remarks that it is very rare in Wales. We only noticed this one, and we believe, as it was close to a house, that it had been originally planted there. It is not recorded by Bingley, at least not in his catalogue of the more uncommon Welsh plants. We noticed it on account of its rarity, and especially because of its monstrous size. Mr. Bingley does not appear to have seen the *Common Meadow Saffron,* which we saw in abundance. He however records the appearance of *Anchusa sempervirens* amongst the ruins of Basingwerk Abbey, near Holywell, Flint. Will any of our readers be so kind as to tell us if it still grows there? We baited at Llansanfraid, nine or ten miles from Oswestry, and then started for Meivod along the beautiful vale of that name. The country through which we had hitherto passed, possessed no very remarkable features as distinct from a genuine English landscape, but towards Meivod the character of Welsh scenery became somewhat prominent. The skirts and sides of the hangers (hills) were well clothed with trees, but the bare summits and peaks of the hills considerably overtopped the vegetation. The vale of Meivod is one of the loveliest scenes in North Wales. There is no sterility, with the exception of the peaks and ridges above mentioned. The whole is cultivated and beautified by human labour. The sides of the hills are covered with corn or with sheep, the meadows by the river are clothed with luxuriancy of vegetation of the greenest shade. The beautiful river is overhung or overshaded or concealed by fine foliage, the water alternately glancing in the clear light or concealed by the leafy or rushy vegetation which fringes its banks.

At Meivod there is a very large churchyard, an important feature in these days of sanitary improvement; and the east or chancel end of the church is covered with *Lycium barbarum,* a plant which we have noticed apparently wild about Yarmouth, Isle of Wight. But the church is chiefly remarkable for the growth of Ash, as aforesaid.

The rain, which only threatened on the 13th, came on the morning of the 14th in great force. About six o'clock A.M., the rain abating a little, we started for Cann Office, eight or nine miles from Meivod. The road was miry and stiff: the adhesive mud formed of the limestone *débris* rendered walking a rather laborious exercise, and the speed of our locomotives was just about one-tenth of what is usual on the Great Western Railway. The only interesting plant which we noticed on this portion of our journey was *Spiræa salicifolia,* which occurred on the right-hand side of the road, about a mile or two on the Meivod side of Cann Office, in great plenty. The hedge appeared rather to be formed of this plant, than the plant to grow in or form a part of the hedge. This was the case for some extent along the road. We observed this shrub also near Maentwrog in Merionethshire, in a hedge on the right-hand side coming from Trawsfinydd.

Except in shrubberies, or in similar places, where it was probably planted, we had never noticed this plant. It was probably planted where we saw it in North Wales. So is the Hawthorn, the common hedging-stuff of England. Hedges are always planted either of young shrubs grown on the spot, as *Elm,* etc., or of *Thorn,* which is usually raised in a nursery. But they are always made of shrubs which will endure for a considerable period, and which are hardy enough to bear the climate of this country. That this shrub, the *Spiræa*, is capable of an existence in our climate for a long period, the hedge near Cann Office sufficiently proves; and this is all the proof obtainable of the nativity of perhaps one-third of the British plants, and whose nativity has never been questioned. It is not in Bingley's Catalogue. Not far from this point we noticed *Ribes Grossularia* also in the hedge.

At Garthbibio we gathered a variety of *Valeriana officinalis*, with more than the usual number of leaflets. We would thank Mr. Babington for a specimen of what he calls *V. sambucifolius*. Almost all the plants we have examined correspond with his character of the latter plant. The Welsh one noticed near Cann Office differed from the common form only in having more leaflets, so far as we were able to judge from a mutilated specimen. About a mile further on we noticed luxuriant specimens of *Polypodium Phegopteris*, growing with *Athyrium Filix-fœmina* and *Lastrea Filix-mas*. These ferns were distinguishable at some distance, both by their aspect and hue. Near the same place we saw the yellow rosette leaves of the Butterwort (*Pinguicula vulgaris*); and on the left of the road, in the coppice skirting the hill and bordering the river, about three or four miles from Mallwydd, we noticed fine plants of *Epipactis latifolia*. The road from Garthbibio passed over a portion of the chain of the Berwyn Mountains, which occupy the eastern side of Merionethshire, and branch into Denbighshire and Montgomeryshire. They are chiefly composed of schist, and the vegetation is not generally of a very interesting character.

At Mallwydd we of course visited the churchyard, to inspect the most extraordinary Yew-tree in Wales, if not in England,—a land remarkable for enormous trees of this kind. This immense tree is undivided for two or three feet from the ground, and at this height it separates into six huge branches. When visited by Mr. Aiken, about sixty years ago, its main trunk was 22 ft. 6 in. in girth, and the branches were respectively 10 ft. 9 in., 8 ft. 10 in., 7 ft. 8 in., 7 ft. 6 in., and 5 ft. 9 in.; and the radius of the branches, which spread like a canopy over a large portion of the churchyard, was 39 feet. Our measures and estimated spread, at the end of a period of nearly sixty years since, are of course considerably greater. We measured the grand trunk or main stem, and found it to be about thirty feet, and consequently the diameter would be between nine and ten feet. If the principal branches increased in the same proportion, their dimensions would be as follow, viz. 13 ft. 4 in., 11 ft. 9 in., 10 ft. 3 in., 10 ft., 8 ft., 7 ft. 8 in.; and the radius, from the centre of the main trunk to the extremities of the branches, would be fifty-two feet. There is another Yew in the churchyard, but not yet remarkable for magnitude. This large tree did not exhibit any appearances of decay, and if uninjured by accidents, such as storms, fire, and the like, seems likely to exist for many centuries. In the churchyard we also observed *Vinca major* well established.

The road from Garthbibio to Mallwydd very much improved. At or near to the former the limestone ceases to be the principal formation, and the schist which crops out on the confines of Montgomeryshire forms an excellent road for pedestrians, even in wet or rainy weather. It is quite firm and free from the adhesive mud which abounds on roads passing through the limestone tracts, where the roads are always either dusty or muddy. At Mallwydd we left the Machynlleth road to our left, and struck across the Arran chain of hills towards Dolgelly by Dinas Mowddy,—a very romantic, interesting walk. The scenery on the Cann Office side of Mallwydd is striking, especially near to the boundary of the two counties, Montgomeryshire and Merionethshire, but it is not comparable to that over the Arran chain. The latter is remarkably desolate and barren. The riches of this part of the Principality lie underground, consisting of lead and copper mines and slate quarries; but the latter are not very productive: even if they were so, the distance from water-carriage would render them comparatively of little value. Ores are valuable enough to bear the expense of a long inland carriage, but slates are not.

From Mallwydd to Dinas Mowddy the distance is somewhat less than two miles along the banks of the Cerrist, a branch of the Dovey. We reached this ancient city—for so it is called here—in time for a rather late dinner, having walked about twenty miles (from Meivod). The natives of this original and queer-looking place boast that it was never conquered; hence we might expect to meet with genuine descendants of the ancient Celtic race in a city that held out against the Romans, the Saxons, the Danes, the Normans, and the English. This however is not the case. The Sassenach has found the way to Dinas, although the helmeted warrior never discovered a path to this sequestered spot. Gold is the key which opens every gate except heaven's, and makes a way for carriages where there was formerly only a sheep track or a wheelbarrow road. There is one way to Dinas Mowddy and another out of it, or, in other words, the way from Mallwydd to Dolgelly passes through the town. Other approach or exit it has none. Although a regal as well as ecclesiastical city, it is a miserably wretched place. The habitations are mean, dilapidated, and, judging from their exterior, incommodious and foul within. An agent of a London Mining Company informed us that the earnings of the inhabitants were not inconsiderable,—18*s*. to £1 a week; or more in some cases. They possess all the privileges of a civic government: have a mayor, aldermen, etc. The recorder was pointed out to us, a poor-looking man, of hardly so respectable an appearance as a crossing-sweeper in London. There is a *plas* or mansion in Dinas, naturally beautiful, but, like the city, in a ruinous, neglected condition. This curiously-situated place lies in a basin surrounded by lofty hills, which rather overhang it than bound it. These are entirely destitute of trees and everything else but a straggling tuft of short, coarse grass here and there. The river flows by it, and by the riverside is the only way of ingress or egress. The following old proverb is descriptive of the moral state of Dinas two centuries ago, and of its physical condition at the present time:—

> "In Mawddy black three things remain—
> False men, blue earth, and ceaseless rain:
> Of these they'd gladly riddance gain."

Here we were however comfortably housed for the night.

The following morning, which was raw and foggy, saw us on the road by six o'clock. We soon cleared the suburbs and environs of Dinas, and found, as we had been forewarned, that we should have a steep pull up the acclivity before we reached the ridge of the Arran Mountains. During this morning's walk we collected *Gentiana campestris* and *Mentha piperita*, the latter far enough from any human habitation. Except it may be a shieling or so for the miners or shepherds, there is no house between Dinas and Croes Foxes, except a miserable abode considerably further on than the summit of the mountain-chain, and this last is five miles from Dinas. We infer that Merionethshire does really produce *Mentha piperita.* We collected also a withered specimen of a Cruciferous plant, a *Draba* as we believed, and we conjectured that it was *Draba incana.* We have gathered many specimens of *Draba incana* in the West Riding of Yorkshire, some recent and some withered, like the Welsh plant. Will any of our obliging correspondents, acquainted with Welsh botanology, confirm this conjecture of ours, viz. the existence of *Draba incana* in Merionethshire? It is recorded by Bingley as a Caernarvonshire plant, and is so by the editor of the second edition of the Botanist's Guide. It is a Highland species, or belongs to the Highland type of distribution; but if it occurs in Caernarvonshire it may in Merionethshire, for they are contiguous counties, and we were not on the extreme south of the latter when we collected this plant.

From the Crocs Foxes, a very mean inn at the junction of the Machynlleth and Dinas Mowddy roads, we walked along the old road to Dolgelly, over a spur of the great mountain Cader Idris, the Giant's Chair. This was the finest walk we had as yet enjoyed in Wales. The morning was fine, and the views most magnificent:—the three peaks of the Cader on our left, the less lofty ranges about Barmouth, Trawsfynnydd, and Bala on our right, the beautifully-wooded slopes round about Dolgelly before, and the barren and bare Arran Mowddy chain behind us. The intereting plants noticed during this walk of three or four miles were *Nepeta Cataria, Calamintha of.*, and *Inula Helenium;* the latter, though on the roadside, was near a cottage; its origin therefore, in modern botanical phrase, is suspicious. We have never seen it in any situation where it could be said to be even of spontaneous growth. We gathered here the interesting *Polypodium Dryopteris,* about a mile or so before we reached Dolgelly, where we halted. And here we close this portion of our account.

On Popular Names of Plants.—WAYBRED (*not* WAYBREAD), *the ancient English Name of* Plantago major.

The *Plantago major* bears the above in old herbals, and this name *Waybrede* is by some supposed to imply that the plant has some connection with the staff of life, which is the support of all wayfarers, whether travelling along the highway from cities and towns to villages and hamlets, or jogging along through the occupations, employments, and cares of humanity, to that bourne whence no traveller returns.

In reference to the first part of the compound term *Waybrede,* there is no difference of opinion among our etymological botanists. "Waybrede," says Mr. Fox Talbot, in his 'Etymologies,' "is an old name for the *Plantain,* a weed which grows very commonly by roadsides in England. But what has it to do with bread? It affords no nourishment of any kind. The German name for it is *Wegetritt,* that is, Way-tread; a good name, because it is trodden underfoot, growing on the hardest roads, etc. I conjecture that the word Waybrede was mistaken by our old herbalists for Way-tread, etc."—Etym. p. 412.

Dr. Johnston (Bot. Eastern Borders) states that the various terms "*Waybrede, Wayfron, Weyborn, Weybret,* merely express the wayside habit of the plant, which is the child of roadsides and pathways." This is true, but it only accounts for the first half of the name. Mr. Talbot's conjecture, like the conjectures of many others fully as sapient as he, may be readily disposed of by the aid of a few etymological facts which were as accessible to the learned author of the 'Etymologies' as they are to his humble servant, who ventures to help both these learned pundits, to correct the gratuitous conjectural assumption of the one, and to supply the omission of the other.

First, the term *way* in English is equivalent to *wæg* or *weg* in Anglo-Saxon, *teste* Bosworth, on the authority of Ælfric and Somner. The other part of the term, *brede,* Dr. Johnston might have found among the peasantry of his *ain countrie,* for they still use the form *braid* for *broad,* as *braid claith* for *broad cloth, teste* Jamieson. The German name of the plant is *Wegebreit,* or *Wegbreit* (old German, *Wegabreita*), English, Waybread; from *breiten* or *ausbreiten,* to dilate, or become or be broad; *auch das Wegeblatt,* or the *Wayleaf: teste* Heyse, Dict. 1828, in voce *Weg.* The Swedish name of the plant is *Groblad, great* or *broad leaf.* The Danish name of the same is *Veibred,* from *vei,* a *way,* and *bred, broad.*

The applicability of the term *broad* to the *Greater Plantain* (*Plantago major*) is very obvious. The application of the term *bread* is absurd, and opposed to the true etymology of the name. The Anglo-Saxon word for bread is not *bred* or *brede,* but *hlaf,* hence our word *loaf;* the German is not *bred,* but *brod,* and the Danish, *bröd.* But the terms *bred* in Anglo-Saxon, *breit* in German, and *bred* in Danish, all of which are equivalents of *broad,* exactly describe one of the qualities of the plant, viz. broad-leaved; the other, viz. *way,* its locality, for it is especially a wayside plant.

In the north-east of Scotland the plant is never named *Way-brede,* nor have I ever heard it so called in the southern counties of the island. Plantain, or Plantain-leaf, is its usual name,—one of the many proofs which can be adduced that the scientific or Latin names have superseded the ancient vernacular terms, or that the terms are common both to the Latin and Celtic, and have descended to us from the latter language.

Planta, Latin, means the sole of the foot, hence the name *Plantago* or *Plantain,* a plant which grows where the surface is trodden by the foot of the wayfarer. The Cornish word *plans* means *foot,* and is evidently from the same etymon as Latin *planta.* Some say that the Celts, the ancient population of Britain, borrowed from the Romans all or most of the words which are similar to the Latin in sound and in sense. This is conjectural; and the etymologist, as well as the botanist, has to deal with facts, not with conjectures.

The plant is not like the sole of the foot, hence its name is not derived from this character, and Richardson's conjecture is untenable. See Richardson's Dictionary *in loco.* Several forms or variations of the Celtic word *plant* mean progeny, children, also to plant, and hence *plant* in general. Richardson follows Ainsworth, without citing him. The latter informs us that *Plantago* is from *planta,* as *Lappago* is from *lappa;* "quod plantæ pedum similis sit," *like the sole of feet.* Richardson has made the fault his own by adopting the opinion without citing his authority. Vossius more prudently cites authorities, and pleads custom. "Festus," says the latter authority, "derives *Plantain* from *planus,* which I conjecture comes from the Doric πλατα for πλατη, and the Latins as usual insert ν before τ." These Greek words intimate some connection between extension and this word *plant;* hence our term *platitude,* breadth, mostly applied in a figurative sense, rarely if ever in a literal, natural, or physical sense, in which significations the terms broad, breadth, dilated, etc., are generally employed.

The Germans apply the term *Wegetritt* to the greater Plantain, but this modern application cannot explain our ancient term *Waybrede,* which is, as stated above, only a variety of *breit,* or *broad.*

On the Statistics of the Order RANUNCULACEÆ: *Duration, Periodicity, Habitats, and Range* (*horizontal and altitudinal*) *of the British Species.*

The maximum number of species belonging to this Order is found in Europe. Dr. Lindley informs us that the European species are more than one-fifth of the whole; but this is no very great preponderance. The same author in another work states that "they are so abundant in all parts of the world, that an Order can hardly be found more universally and more equally dispersed." About twenty of the genera belong to Europe, but are not exclusively confined to this quarter of the globe. Sixteen genera and forty-one species are found in the British Isles. They are, with the exception of *Clematis,* all herbaceous. In their duration they are for the most part perennial. Four *Ranunculi,* viz. *R. hirsutus, R. sceleratus, R. arvensis,* and *R. parviflorus,* are annuals; *Myosurus, Adonis,* and *Delphinium* are also of the same duration. Of these three last-mentioned genera the British Isles produce only one species of each.

The periodicity (time of flowering and ripening seeds) of the British species extends from January to the latter end of summer, or to the beginning of autumn. In gardens and copses, where the Winter Aconite (*Eranthis hiemalis*) grows, we may notice, in mild winters, its pretty flowers about the end of January or at the beginning of February. It is the companion of the Snowdrop, and precedes the Crocus some weeks. The next flower of the family is the Pilewort (*Ficaria ranunculoides*), a common and a genuine British species. There may be some room for doubting the claims of the Winter Aconite as of native origin, but of the British descent of the Pilewort there is no question. This latter usually appears about the end of February and at the beginning of March. It has been seen on the 13th February, but it is also recorded on the 17th and 20th of March. The usual period is the first week of March. Both the Hellebores (*Helleborus fœtidus* and *H. viridis*) are early flowerers: the former flowers in March at the latest, and the latter soon after. Like all early flowering plants, these retain their flowers during a long period.

The Wood Anemone (*Anemone nemorosa*) is in flower earlier than the Marsh Marigold. Its registered dates, in the writer's journals of floral and atmospheric phenomena, are as follow: the 8th of March, a rare occurrence; also various intermediate periods between the middle of March and the middle of April. Marsh Marigold (*Caltha palustris*) has been observed in flower on the 13th, 20th, and 25th of March, and its first occurrence has been noticed as late as the 18th, and even the 24th, of April:* these last are unusually late dates; its mean period is the last week of March. The earliest of the *Ranunculi* (Buttercups) is *R. auricomus,* which has been observed in flower on the 4th of April; the 11th and 29th of the same month are also noted. It will however be in a better state, both for study and especially for the herbarium, if collected not earlier than the month of May, when it begins to produce ripened carpels. The pure white flowers of *R. aquatilis* are conspicuous on the surface of pools and ponds about the same period as that given for the Wood Crowfoot (*R. auricomus*), but it requires some weeks or a month before it is suitable either for investigation or for the herbarium. *R. hederaceus* (Ivy-leaved Crowfoot) flowers at the very same time as the two last noted species. *R. bulbosus* (Bulbous-rooted Crowfoot) produces flowers by the end of April in early seasons. Common Buttercup (*R. acris*) is somewhat later than *R. bulbosus.* Its registered dates are the 3rd of May, the 15th and 18th of the same month: these latter are the more common periods of its appearance in this state. We have often had the *Adonis autumnalis* from Kent in April and early in May; its extreme periods are April and October. The Anemones are all early flowerers, but they are all rare except the common one, *A. nemorosa,* noticed above. The Piony, Globe-flower, Columbine, Baneberry (*Actæa spicata*), and Monkshood all flower before midsummer. The same date may be assigned to *R. repens* (Creeping Crowfoot) and *R. parviflorus.* *R. hirsutus, R. sceleratus,* and *R. arvensis* are somewhat later. These three last mentioned may be called midsummer plants. *Thalictrum alpinum, T. minus* (*T. minus, T. flexuosum, T. saxatile*), and *T. flavum* are in flower at the same period. The alpine and meadow species soon pass from the flowering state, and should be looked for about the first week in June. The only late flower of the Order is the *Clematis* (Virgin's Bower); we have never seen this plant in flower earlier than July or August, though we will not maintain that some plants may *not* flower by the end of June. We do not think that its usual period of flowering (in the south of England) is so early as June, a date we have seen assigned to it. Only a very few species of this Order, viz. Larkspur, Pheasant's Eye, and a few *Ranunculi*, are found in flower all the summer months and last till autumn; the great majority of them are spring and early summer plants.

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* This very day was that on which it was first noticed, this season; a proof, among many others, that the present Spring is unusually late.

The species of this extensive Order are distributed as follow:—1. All the *Batrachium* section of *Ranunculus*, viz. *R. hederaceus, R. cœnosus, R. aquatilis, R. fluitans*, etc., are aquatics, *i. e.* they grow in water, or in water and mud. *R. Lingua, R. ophioglossifolius*, and *R. sceleratus* are aquatic, though they are occasionally found in wet, marshy places. *Ranunculus Flammula* and *Caltha palustris* are *palustrals, i. e.* they grow in marshes. All the British species of *Thalictrum* are *pascual* (pasture plants). *Anemone Pulsatilla* belongs also to this group, together with *Ranunculus acris, R. repens, R. bulbosus, Ficaria ranunculoides, Trollius europæus*, and *Actæa spicata.* The sylvan plants of the Order are the Anemones (excluding *A. Pulsatilla*), *Ranunculus auricomus*, Columbine, and both the *Hellebores. Clematis Vitalba* is a septal plant, and is almost the only hedge-plant of this Order. *Helleborus fœtidus*, though generally found under hedges, is not confined to this habitat; it abounds at High Laver, near Ongar, Essex, as noticed by Ray, but it occurs also in Rockingham Forest, Northamptonshire. The agrarial plants are all annuals, viz. *Adonis autumnalis, Ranunculus arvensis, R. hirsutus*, and *R. parviflorus*, though we have seen the last-mentioned about roadsides; *Adonis, Myosurus*, and *Delphinium* are also agrarial annuals. The Piony and Monkshood are very local. *Ranunculus alpestris* and *Thalictrum alpinum* are the only alpine species, and they are pascuals. *Trollius* and *Actæa* grow commonly at considerable altitudes. In estimating the horizontal distribution of the plants of this Order, we may state that the more common species have the largest horizontal area, and that the rarer or less common have a less extensive distribution, or cover a less area. The most common species are the following, viz. the Wood Anemone, the Common Water Crowfoot (*R. aquatilis*), the Ivy-leafed Crowfoot (*R. hederaceus*), the three Meadow Buttercups (*R. acris, R. repens,* and *Ficaria ranunculoides*); also *R. Flammula* and *Caltha palustris:* these are universally distributed, being found in most or all of the counties of Great Britain. *Ranunculus auricomus, R. bulbosus,* and *R. sceleratus* are not so widely distributed. Again, *Clematis, Adonis, Myosurus, Helleborus viridis, H. fœtidus, Thalictrum flavum, T. minus, T. alpinum, Anemone Pulsatilla, Ranunculus hirsutus, R. parviflorus, Trollius europæus, Aquilegia,* and *Delphinium* are still more restricted in horizontal area. Some of them, as the *Hellebores, Anemone Pulsatilla, Adonis,* and *Delphinium* are only of local distribution, and are mostly confined to England. *Trollius* belongs to those plants which have the Scottish type of distribution; *Pæonia, Actæa,* and *Aconitum* are very local, being found only in one or two counties respectively; *Eranthis* is an alien. The altitudinal range of the species is also great. The aquatic *Ranunculi,* with the exception of *R. aquatilis* and *R. hederaceus,* do not attain a greater vertical range than 200 yards; the exceptions reach 350 yards and 800 yards in the East Highlands and North Wales. (*See* Cybele, *in loco.*) Some of the same genus, viz. *R. alpestris* and *R. acris,* reach the limits of perpetual snow; and some, as *R. repens, R. Flammula, R. bulbosus,* and *R. auricomus, Caltha palustris, Trollius,* or some one or other of them, occupy all intermediate elevations between the greatest and the least altitudes. The rest of the *Ranunculi* are limited to the coast-line, or between that and 200 yards of vertical height; *Actæa spicata* and *Trollius Europæus* do not quite reach the coast-line. *Thalictrum alpinum* and *T. minus* have a very extensive vertical range, descending to the coast-line in the north of Scotland, and they ascend to about 800 yards, or even more, in Wales. The former does not extend further south than Wales, and the latter, though extending further south, is only found in the western counties at this latitude. Two species, *Pæonia corallina* and *Aconitum Napellus,* are limited to the west of England. *Trollius europæus, Actæa spicata,* and *Thalictrum alpinum* have a preference for the moister climate of the west, and this is at least to some extent the case with *Thalictrum minus.* The preponderance of species however is in the east or agrarial portion of the island. *Adonis, Myosurus,* and *Delphinium* are confined to the eastern half of England. In other situations, as the learned author of 'Cybele Britannica' states, they are only to be regarded as stragglers: in the south-east of England they are apparently well established. The Anemones, except *A. nemorosa,* and also *Ranunculus Lingua,* are chiefly found in the east of England; we suspect that the east of England is the centre of *R. Lingua.* The south of England is the home of *Clematis Vitalba;* for though it has been seen in North Wales, yet in a place or places where it probably was planted. The Trent and the Humber are believed to be its northern limitations. From its scarcity in Wales we are inclined to refer it rather to the Germanic than to the English type of distribution.

Reviews.

A Supplement to Baines's 'Flora of Yorkshire,' *with a Map.*
Part First: The Flowering Plants and Ferns. *By* JOHN GILBERT BAKER.
Part Second: The Mosses of the County. *By* JOHN NOWELL.

In 1835, the author of the new 'Botanist's Guide' remarks, p. 274, vol. i., that "no county in England offers a finer field for a local flora than does Yorkshire;" and adds, "it is not a little remarkable that none should yet exist." This desideratum is now amply supplied: first, by Baines's Yorkshire Flora, published in 1840, and now by the, it may be presumed, more accurate one published as above, and containing "a complete list of the Flowering Plants, Ferns, and Mosses known, or reported, to grow wild within the limits of the county, so far as they have been ascertained by those who have contributed towards it, at the close of 1853. The author states further, that he has wished "that the 'Supplement,' either taken alone or in connection with the 'Flora,' might furnish a summary of the higher vegetation of the county, so far as it has been ascertained," etc. In order to carry out this intention, "a line or more is devoted to each species which the county is ascertained or reported to afford; but a single line only to those species, respecting the situations and degree of rarity or frequency of which no further information than is contained in the 'Flora' appears necessary to be given, or has been obtained. This line contains, on the left-hand side, the number and name under which the species stands in the Catalogue of British Plants published by the Botanical Society of London, with an abbreviation of the name of the original authority for the latter. Next is placed one or other of the series of terms used to express the degree of citizenship of the species, so far as can be judged from the evidence which has been obtained, viz. native, denizen, colonist, alien, and incognit, from 'Cybele Britannica,' vol. i. p. 63."

The author supplies a general summary of the Flowering Plants and Ferns, from which it appears that there are 1155 species of the former and 53 of the latter; but he makes a deduction of 73 flowering plants and 8 ferns, which are certainly erroneous, or cannot be received with confidence as Yorkshire plants. Of the remaining 1082 flowering plants, 31 are only naturalized, and not included in the London Catalogue; and one, *Salix acutifolia*, has been discovered since it was printed. So that out of 1445 flowering plants enumerated in the Catalogue, 1051 species, or 72½ per cent., and out of 60 ferns, 45 species, or 75 per cent., now inhabit Yorkshire. Deducting the above species, the proportion is reduced to 71¼ per cent., or 1001 to 1339.

Of flowering plants, the natives are . . .	893
Denizen (established)	36
Colonist (depending on agriculture) . . .	27
	1001

The following are the types of distribution of the flowering plants:—British, 542; English, 272; Scottish, 51; Highland, 30; Germanic, 29; Atlantic, 7; local, or doubtful, 25.

The ferns are 25, 5, 4, 6, 3, 2, respectively. See Sup. p. 14.

The plants universally distributed over Britain, or, in the geographical term, having their type of distribution universal, are 567.

Those belonging to the austral type, or which do not usually extend northwards further than Yorkshire, are 317.

Those belonging to the boreal type, 91; local, 26. Total, 1001.

Three are only known as Yorkshire plants, viz. *Polygala uli-*

ginosa, Salix acutifolia, and *Carex paradoxa,* to which *Saxifraga umbrosa* may be added.

Three local species are not known to grow in any of the eastern counties, either to the north or the south of Yorkshire, viz. *Actæa spicata, Asarum Europæum, Lastrea rigida.* 80 species have their boreal or northern limit in Yorkshire, and 50 species have their southern limit in this county. See Sup. p. 16.

About thirty pages are occupied with an outline of the bearings of the physical geography of the county upon its vegetation; a statement of much interest to those who study vegetation in connection with geological formations, river-basins, etc. But we beg to refer our readers to the work itself, in which they will find satisfactory information on these heads.

We wish the editors or authors of the 'Supplement' had prepared a new edition of the 'Flora,' rather than a supplement to the former. The reasons for this desire are obvious enough. We do not find fault with them for this: they only intended to publish a supplement, and they have done so, as far as we can judge, very carefully. It is a complete Flora of the county, and will, for most purposes, supersede the use of the original work. But the reader will desire information about the localities of the rarer plants of the *Flora,* and generally he will find in the 'Supplement' only the name, etc., except where new localities have been discovered; hence he finds it necessary to possess and consult the original work. We should also have wished a complete map of the county, viz. the East and West Ridings, as well as the North. There are obvious reasons also for this; though we have no right to blame the authors for not consulting our desires and necessities. We thankfully take what they have given, and hope it may be only an instalment of what they can and will do for the promotion of local botany.

The number of Mosses named and localized in the 'Supplement' is 40 genera and 323 species. In the name of the readers of the 'Phytologist,' we thank the gentlemen who have supplied us with a complete Flora of the largest county in England, and which perhaps yields more species interesting to botanists than any other county in Britain. Its northern portion is nearly midway between the northern and southern extremities of the island; and of the eastern counties of England, it possesses the greatest variety both of soil and elevation. Its Flora is intermediate between the austral and boreal type of distribution; it is a link uniting the Floras of the extreme south and extreme north of Britain.

(*To be continued.*)

Linnæan Society, January 17, 1855 (President in the chair); among other papers the following was read:—

Extract from a Letter addressed to the President by the Rev. W. H. Hawker, relating to the discovery of several new localities for some rare Ferns and Shells.—Mr. Hawker writes as follows:—Last year I paid a visit to the English Lakes, and had the good fortune to find *Polystichum Lonchitis* growing near Ulleswater. I brought away one plant, and sent a frond to Newman, who however does not mention it in his new edition. This year, in July, I went to the Lakes again, and had the pleasure of confirming the above discovery; and moreover, on my mentioning it to other collectors up there, a search was instituted, which resulted in its turning up in several localities in that district, *e. g.* Helvellyn, Fairfield, etc. This Fern had never been found in the Lake country, I believe. Whilst up there this year, I went a few days' botanizing ramble with a Mr. Clowes, of Windermere, and on one of these days, in climbing up a terrific precipice, I had the delight to find *Asplenium septentrionale,* and right among them I found two plants of *Asplenium Germanicum!* a guide was with me, who found *Woodsia Ilvensis* growing in some quantity: three good things, were they not, to be found on a spot not three yards square? It was on an outcrop of the iron ore, which seems to me always to be a good matrix for Ferns. This took place not many miles from Scaw Fell, though not on it. It was of course plain that the locality had never before been visited by a botanist. Mr. Clowes found *Euphorbia Cyparissias* growing on Whitbarrow Fells in great quantity. I have gathered it on the mountain limestone of Somersetshire, near Wilts, and should think it will prove to be a true native. Last September and October I took a rapid run on the Continent, up the Rhine, etc. The season was late, and the flowers were mostly over. I found on the Jura, in one spot, my favourite *Asplenium fontanum.* In the pine forests of the Alps and Jura, *Polystichum Lonchitis* grows in wonderful luxuriance; I have dried fronds 22 inches long; its appearance is quite beautiful. *Asplenium septentrionale,* too, abounded on alpine rocks.

BOTANICAL NOTES, NOTICES, AND QUERIES.

A fresh or recent specimen of *Ranunculus confusus*, Godron, and of *R. tripartitus*, DeC., will oblige the editors of the 'Phytologist,' and will be acknowledged with thanks.

Have any of our readers ever noticed *Scutellaria minor*, upwards of two feet high, branched, and of a straggling habit? We met with an extraordinary state of this species in Parkhurst Forest, near Newport, Isle of Wight. There were many plants, between two and three feet high, much branched, growing among long grass in a shaded ditch. The usual form of the plant is simple, and seldom more than five or six inches high.

Yorkshire botanists are requested to inform us if they have ever noticed or heard of a *Hypericum*, near Settle, a species hitherto not recorded by any botanist as growing apparently wild, within the four seas of Britain. This plant, noticed in September 1852, is on the left bank of the Settle river (Ribble), about a hundred yards below the railway bridge, and near to the place where several *Menthæ* grow. It is not a recent introduction, but must have been in that station many years anterior to the date above stated. It bore more resemblance to *H. hircinum* than to *H. Androsæmum*. It was a much taller plant than the latter, and formed a large bush, which the latter never does.

Can any of our readers verify the following quotation from a newspaper? We know that the fact is *substantially* as therein stated:—

"NATURAL BAROMETERS.—Chickweed is an excellent barometer. When the flower expands fully, we are not to expect rain for several hours; should it continue in that state, no rain will disturb the summer's day. When it half conceals its miniature flower, the day is generally showery; but if it entirely shuts up, or veils the white flower with a green mantle, let the traveller put on his great-coat. The different species of Trefoil always contract their leaves at the approach of a storm. The Tulip and several of the compound yellow flowers all close before rain."

Will any of our South-west of England correspondents inform us if *Clematis Vitalba* be very common in the calcareous parts of the south-west of England?

A correspondent inquires, from what tree is the wood produced of which those light packing-cases are made which bring over silks from China? If sawed or wrought with the plane, this wood yields a very pleasant smell—a sort of spicy, camphor-like fragrance; it is a remarkably light wood: can it be some species of *Laurus?* Numbers of these packing-cases come by almost every steamer to Southampton.

In reply to K. R., who inquires concerning the fate of Mr. J. Strange and his little exploring party, we believe nothing more is known in England yet than the short account copied into the 'Literary Gazette' of March the 10th, from a Sydney paper, in which is detailed a fearful account of four out of six of the party having been speared or otherwise killed by the natives of Percy Island, on or about October 16th, 1854. Confirmatory evidence being still wanting, we hope and trust that the relation given from the above source may prove incorrect, or at least exaggerated.

There is a very large Umbelliferous plant growing perfectly wild in corners of fields and ditch-banks about Merstham and Gatton, Surrey,—what is it? The plant appears quite at home thereabouts, and is of enormous size, and has attracted the writer's attention several years.

Croydon. D. W.

NOTICES TO CORRESPONDENTS.

Mr. Gissing's article on the Plants of Devonshire in our next.

Our Settle correspondents will be pleased to learn that a list of the plants collected in that part of the West Riding by Mr. Curtis some years past is in preparation, and will appear in an early number, accompanied by notes and comments from one of our contributors who botanized in the Craven district two or three years ago.

The very curious Fern, of which a neat pencil-drawing (made from a dried specimen collected in the valley of the Essequibo, Guiana) has been sent by our valued correspondent the Rev. Gerard Smith, appears to be *Schizaea flabellum*, Mart. It is not known in a living state in Europe; it occurs in the first collection of Guiana plants (that distributed by Mr. Bentham) sent home by Sir Robert Schomburgk, about 1835, and stands under No. 443 of that Herbarium.

Mr. R. Kennedy.—The barren fronds of two species of Australian Ferns sent for naming are unknown to us. The one appears to belong to some species of *Lomaria*. Our correspondents generally, will please to bear in mind, that if plants are required to be named, the *fertile* portion, as well as the *sterile*, is needful for identification.

R. B.'s proposition is accepted with thanks; such communications will be always welcome.

Our best thanks are also due to Mr. Syme, Mr. Thomas Moore, Mr. Purchas, and Mr. Smith.

Communications have been received from

Mr. Borrer; Mr. Gissing; Mr. J. Kennedy (Winchester); Rev. Gerard Smith; Mr. R. Kennedy; Dr. J. Dickinson; Mr. Baynes; Mr. J. G. Baker; Mr. J. Nowell; Mr. R. Bentley; Mr. Syme; Rev. W. S. Hore.

BOOKS RECEIVED FOR REVIEW.

Sowerby's Ferns of Great Britain Illustrated.
Baines's Supplement to the Flora of Yorkshire.
Hooker's Icones Plantarum, vol. x., completing the work.
Dickinson's Flora of Liverpool.
Pritzel: Iconum Botanicarum Index locupletissimus.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Botanical Notes from South Devon. By T. W. Gissing.

The following Notes are the result of a few days spent in South Devon, during the first fortnight of June, of the present year.

By the canal, near Exeter, *Œnanthe crocata* is abundant, and under the walls adjoining *Senebiera didyma* is very fine and plentiful; in fact this latter plant is a common weed throughout the southern part of the county. *Iris fœtidissima* likewise, as every one knows, is abundant, but up to the 15th of June I saw none in flower, and but little in advanced bud. Proceeding from Exeter by the romantic South Devon Railway, that runs for miles almost within the spray of the sea waves on one side, and with high cliffs frowning over the other, I arrived at Torquay, between which town and Babbicombe, *Arabis hirsuta* and *Rubia peregrina* are frequent. In the lanes at the back of Babbicombe Bay, *Primula vulgaris* was still plentifully in flower; and notwithstanding all that has been said about the Cowslip not growing in Devonshire, I found it plentifully at Austey's Cove, near Torquay, although of course in seed. *Asplenium Trichomanes, Poterium Sanguisorba, Centranthus ruber, Ranunculus parviflorus, Valeriana officinalis*, var. *alb.*, *Sedum reflexum* (not yet in flower), *Daucus maritimus, Lithospermum officinale, Scolopendrium vulgare, Pyrus Aria*, and *Melittis Melissophyllum*, were scattered over the rugged and shrub-grown cliffs overlooking Babbicombe Bay. The *Melittis Melissophyllum* I likewise found at Austey's Cove, Chudleigh (a few miles from Teignmouth), and in a wood three or four miles north of Exeter, but in all instances very sparingly.

Leaving Babbicombe, and ascending the rocks, a bleak moory expanse soon brought us to Austey's Cove, one of the grandest and most beautiful spots a tourist can visit, and rich with botanical treasures. Here I found *Anthyllis Vulneraria* (abundant all along the coast), *Crithmum maritimum, Armeria maritima* (likewise plentiful everywhere), *Solidago Virgaurea, Hypericum pulchrum, Spiræa Filipendula, Hippocrepis comosa, Euphorbia Portlandica, Veronica montana, Vicia sylvatica* (not in flower), *Erythræa pulchella, Thalictrum minus, Ceterach officinarum, Brassica oleracea*, and that little gem, the *Helianthemum polifolium*, profusely dotting the ground with its beautiful snowy petals. Amidst the huge rocks at the base, that look like remnants of a giant world, the roof of a small sea-cave is adorned with *Asplenium marinum,* and near it the *A. Ruta-muraria.* Here, in these caves too, where the rise and fall of the waves sound like oft-repeated distant thunder, may be collected numerous seaweeds of every hue. In my walk from this beautiful spot to Torquay, I gathered *Linum angustifolium* (very fine and abundant), *Sedum anglicum, Fumaria capreolata,* a single specimen of *Euphorbia Paralias, Senecio sylvatica, Beta vulgaris, Plantago Coronopus* and *maritima,* and *Lepidium Smithii.* This *Lepidium* I found plentiful in every part of Devonshire I visited, and more common than the *L. campestre.* On a steep crumbling embankment (formerly part of the cliff) by the new road east of Torquay, and not far from Hesketh Crescent, I saw two plants of the rare *Lotus hispidus* (Desf.). I am not aware that it has ever been mentioned as growing in this locality before. There might be more, but not looking very attentively I only saw two dense tufts. I afterwards looked for *L. angustissimus* near Bishop's Teignton, but failed to find it. At Daddy's Hole, near Torquay—a singular rocky and precipitous indentation—many plants common to the coast were growing, as well as *Orobanche Hederæ;* and on the plain above, *Helianthemum polifolium* was very plentiful. *Centranthus ruber* is very common about Torquay, but nowhere that I saw it, deserving to be called *wild;* the most natural habitat I found in Devonshire for it was on a steep marly cliff near Dawlish.

Returning by railway, I spent a couple of hours on the Warren near Dawlish. Here were growing *Carex arenaria, Barbarea præcox, Trifolium subterraneum, Glaux maritima, Arenaria marina, Festuca uniglumis, Trifolium arvense, Calystegia Soldanella, Scirpus maritimus, Triglochin maritimum, Erodium cicutarium* with white flowers (this white variety is far commoner about South Devon, particularly in sandy spots near the sea, than the usual coloured flower), and *Honckenya peploides.* I likewise found a variety of the *Honckenya,* some of which were six or eight inches high, slender-branched, and almost destitute of petals,—in fact the petals appeared more like small scales. I saw this only in one spot, at the Dawlish end of the Warren. In and near a wood about three miles north of Exeter, I gathered *Mellittis Melissophyllum, Rosa villosa, Œnanthe pimpinelloides, Vaccinium Myrtillus, Pyrus Aucuparia, Aspidium spinulosum*

(Hooker), *Blechnum boreale, A. Filix-fœmina,* and *Scolopendrium vulgare,* with the bifid and multifid varieties. These latter plants (*Scolopendrium*) were very fine, being near three feet high, and from the roots of the bifid variety bifid fronds were again growing. I likewise saw here *Cardamine pratensis* with *double* flowers. About a mile and a half from Exeter, by the side of the Sidmouth road, I gathered *Oxalis corniculata.* This plant I likewise found by the roadside near the first milestone between Exeter and Topsham. At St. Mary Clist, a variety of *Veronica Beccabunga* was very plentiful for some distance; the plant had *flesh-coloured flowers, and very long bracteas,* and although growing in a damp situation, none of it exceeded six or eight inches in height. A few stray plants of *Orchis latifolia, O. mascula,* and *O. maculata,* I likewise saw on this day. Orchids seem scarce throughout South Devon; and with the exception of *Listera ovata* and *Habenaria chlorantha,* those just named were the only species I saw. Rare plants of this order are *said* to grow at Babbicombe, but I saw none.

The cliffs at Sidmouth were in spots quite crimson with the beautiful *Lathyrus Nissolia,* and *L. Aphaca* was equally abundant. *Glaucium luteum* made likewise a gorgeous appearance. *Medicago maculata* (very frequent wherever I went), *Armeria maritima, Barbarea præcox,* and *Crambe maritima,* I likewise found at Sidmouth. In the woods at Chudleigh, *Lathrea squamaria, Habenaria chlorantha,* and *Listera ovata* were very fine; and with them grew *Carex strigosa* and *C. sylvatica.* On the Haldon Hills I gathered *Erica Tetralix,* with divided anthers, very long style, and corolla so cleft as to appear like four distinct petals slightly joined at the base. Here I likewise found *Eriophorum angustifolium, E. latifolium, Juncus squarrosus, Scirpus pauciflorus, Carex binervis, C. flava,* and *C. pulicaris,* as well as *Viola palustris, Salix fusca,* and *Orobus tenuifolius.*

After going by rail from Exeter to Starcross I crossed the estuary of the Exe by a ferry-boat, the mouth of the river being more than a mile wide. On landing, I was greeted by *Cakile maritima, Trifolium scabrum, T. striatum, Allium vineale,* etc. On the edge of the cliff near Exmouth I found a few specimens of *Papaver hybridum,* but it was very scarce. Here too grew in profusion *Vicia Bithynica, Œnanthe pimpinelloides, Linum angustifolium, Ranunculus parviflorus,* and *Torilis nodosa.*

Some beautiful sea views were obtained in walking from Exmouth to Budleigh Salterton on the cliffs. Far the greater part of the way there is in reality no shore, the sea at high water washing the rugged perpendicular heights, and at low water that which should be beach consists of large masses of stone imbedded in the earth, and covered with slimy seaweeds of every hue. Just before arriving at Budleigh Salterton I came upon a glorious botanical spot—a botanist's paradise. The majority of visitors would have passed it as a dark, unwholesome, miry bog, although it was quite white in places with the pendulous, downy clusters of the beautiful Cotton Grass (*Eriophorum angustifolium*). But I saw treasures for my vasculum, and at once plunged half knee-deep into dense beds of *Sphagnum,* underlaid with the dirtiest and most adhesive of all mud I ever encountered. When at Sidmouth I slipped into a hole in the cliffs, and so bemarled myself with that peculiar deposit that I had to wash myself and clothes in the sea, I thought I had met with the worst; but that was purity itself to the Budleigh bog. Well, here I gathered *Drosera rotundifolia, D. longifolia, Pinguicula Lusitanica, Narthecium ossifragum,* and many other excellent plants.

Leaving Budleigh on my right, I took the high road back to Exmouth, and soon encountered another bog, own brother to the one just named. Here, in addition to the plants just mentioned, I found *Anagallis tenella, Myosotis repens, Carex fulva, C. pulicaris,* and *Osmunda regalis.* By the roadside I saw *Ulex nanus* and *Ruscus aculeatus.* On returning to Starcross I gathered *Smyrnium Olusatrum.* Near Countess Weir, two miles below Exeter, I found very fine *Medicago maculata,* and noticed that the damper the situation the less visible was the black spot on the leaves; so much so, that where its place of growth became very moist the leaves became *immaculate.* I have noticed this nowhere else; but friends to whom I have mentioned it say that they have seen it, and it is their belief that the spot that gives the specific name to this plant is by no means permanent.

Lathyrus sylvestris, Vicia Bithynica, Silene maritima, Anthemis arvensis, etc., grow plentifully about Teignmouth; and at the Devil's Point, Stonehouse, near Plymouth, I found *Cnicus eriophorus, Trifolium scabrum, Asplenium marinum, Cochlearia Danica, Koniga maritima,* and, the celebrity of the spot, *Eryngium campestre.* This concluded my botanizing in South Devon. I afterwards saw very fine *Hippuris vulgaris* by the side of the railway near Tiverton junction. Some of the rarer of these plants I have forwarded to the Phytological Club; first, for selection for the Central Herbarium, and the remnant for distribution among any of our members who may require them.

An account of Localities of some of the rarer British Plants and others noticed in North Wales by Mr. Pamplin *and* Mr. Irvine, *in September*, 1854.

(*Continued from page* 12.)

We reached Dolgelly on the 15th, early enough to view the town, which is more interesting at a distance than when viewed in proximity to the spectator. Though there be some good buildings, the town does not improve on a *better acquaintance.* Seen from the old Machynlleth road as soon as the road affords a view of it, it looks rather imposing, situated as it is in a broad and fertile vale, well watered with beautiful rivers which rise in the Arran chain, and between two small streams which issue from Cader Idris, and surrounded with lofty, and on the west, south, and north with well-wooded, hills.

Before commencing our botanical notices, we beg to subjoin Dr. T. Fuller's quaint and enigmatical account of Dolgelly:—

"1. The walls thereof are three miles high (the mountains which surround it).
2. Men go into it over the water (on a fair bridge), but
3. Go out of it under water (under a stream which turned an overshot mill).
4. The steeple thereof doth grow therein (the bells hang in a yew-tree).
5. There are more ale-houses than houses (tenements were divided into several tippling houses, and barns were used for that purpose)." *

Fames crescit eundo, the ancient classical adage, or "a story seldom loses anything in the telling," is well exemplified by the state of Dolgelly: like a snowball rolled on melting snow, it soon doubles its original size. Dolgelly may have doubled, but its absurdities have not, though in description they have been expanded or amplified. Dr. Thomas Fuller's comical description of

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* See Fuller's 'Worthies of Wales: Merionethshire.'

Dolgelly is repeated and enlarged by Mr. Wyndham in his Tour in Monmouth and Wales in 1774 and 1775, as follows:—"Dolgelly is fortified with walls six miles high (Dr. Fuller says three); we came into it under water, and out of it over water; there are more ale-houses than houses in it, etc." This whimsical description is ascribed to the ludicrous fancy of an author whose writings on the subject are quoted under the title of 'Torbuck's Collection of Welsh Travels.'

But if the town in itself affords little interest, except to those who take an *interest* in flannel or Welsh webs (these are not synonyms), its neighbourhood will amply repay a sojourn here in the summer or autumnal months. Independently of Cader Idris, which is within an easy walk of the town, there are the roads to Towyn, Barmouth, and to the falls on the Mawddach and Cain, which supply objects attractive to all tourists.

We will now resume our botanical notices. In the afternoon of one of the finest days we spent in Wales a stroll by Nannau Park was taken, especially to see an unrecorded locality for *Impatiens Noli-me-tangere.* The plant was by a roadside, under the shade and drip of some trees, but there were no traces of it within the fence. It is recorded by J. E. Bowman, and quoted in the New Botanist's Guide as growing on the estuary of the Mawddach in this neighbourhood. Another Welsh station is recorded in the New Botanist's Guide, Merionethshire, between Dolgelly and Erwgoed Chapel, about a mile from the latter. Mr. Bingley records it in Montgomeryshire. In this neighbourhood a variety of *Œnanthe crocata,* without yellow juice, was gathered, and with the appearance of *Apium graveolens,* for which it might be mistaken by the uninitiated. It is probably the *Œ. apiifolia* of continental authors. *Geranium lucidum, Epilobium roseum, Hypericum Androsæmum, Asperula odorata, Matricaria Parthenium, Lactuca muralis, Nepeta Cataria, Sium latifolium, Orchis latifolia* and *maculata,* were observed in July. *Prunus Cerasus, P. Avium, Pyrus Malus,* and *P. communis* are not uncommon in woods or hedges. *Rumex sanguineus* was noticed near the bridge. We walked up one of the nearest spurs of Cader Idris early next morning, but the high wind and driving rain made the walk rather uncomfortable. *Stachys Betonica* abounded on the dry woody places, and *Myrica Gale, Narthecium ossifragum,* and other common plants, on the boggy parts.

This day the rain detained us till between four and five o'clock in the afternoon, when we again started for Trawsfynydd, about a dozen or fourteen miles from Dolgelly. On this part of our walk the only interesting plants gathered were *Cotyledon Umbilicus* and *Vicia Orobus,* in the station given by Bingley near Dolymelynllyn, about six miles from Dolgelly. From this spot (the bridge over the Mawddach) the road stretches in a right line to Trawsfynydd, constantly ascending, or with a long acclivity and a short level alternately for about eight miles, most of the country open, cheerless, and barren, no houses, except a cottage and cowshed here and there; but there are miles where there is no erection whatever. Trawsfynydd is situated in a bleak, mountainous district, on the road from Dolgelly to Maentwrog, being about thirteen miles from the former and five from the latter place. There is here little or no cultivation. The parish, which is very large, consists chiefly of barren mountains with some cow pasture round the village. Sheep and cows are the chief substance of the inhabitants. We believe this is one of the most elevated villages in Wales. The inhabitants are pure ancient Britons, sturdy, well-grown persons, as mountaineers usually are. They retain their peculiar costume, *i. e.* the women do, the most characteristic feature of which is the broad-brimmed, high, but not steeple-crowned, hats. In church, where this black beaver is very conspicuous, the females are the most distinguished persons. The language spoken here is Welsh, and Welsh only. There was only one person in the village (the clergyman and schoolmaster excepted) who could speak English, and he, being a seafaring man in his earlier days, knew several languages besides English and his vernacular. He informed us that goats, once so common in Wales, were nearly extinct as stock; but he said that they abounded when he was young. Several well-dressed people were accosted with the English salutations, but invariably *dim Sassenach* (no English) were the only words spoken, and we were able to rejoin *dim Cumraig* (no Welsh). The vegetation about Trawsfynydd is but scanty, yet we noticed here a few plants of interest to botanists, viz. *Vicia Orobus, Hieracium rigidum, H. boreale,* and *Serratula tinctoria.* There are said to be remains of an ancient military way not far from this village, and on the right-hand side of the road to Maentwrog, about two miles from Trawsfynydd there are evident remains of what may have once been a British castle and fort of some extent and strength.

We started from this genuine Welsh village for Maentwrog about half-past five on the morning of the 18th, under a dull grey sky. The fogs never cleared away from the summits of the hills before us. This was accounted a bad sign—a prognostic of rain in the course of the day. We expected to reach as far as Pen-y-gwryd that evening, but our expectations were not realized. *Spiræa salicifolia* was noticed not far from Maentwrog, growing plentifully in the hedge, as we had previously seen it in Montgomeryshire on our way to Cann Office from Meivod. The village and vale of Maentwrog form, with the adjoining neighbourhood of Ffestiniog, Tan-y-bwlch, and the fashionable watering places of Tremadoc and Port Madoc, with the celebrated falls Rhaiadr-du and the Raven falls, some of the most charming scenery in Wales, and, for a temporary or prolonged sojourn, cannot be surpassed even in the Principality. We have not seen any spot in North Wales so desirable for a permanent residence. The situation is on the small river Dwyryd, which, below Maentwrog, forms an estuary which reaches to Cardigan Bay. The beautiful grounds, woods, and hills of Tan-y-bwlch, with the mansion and the inn, are about half a mile distant on the north-west, and Ffestiniog, with its beautiful vale, lies behind it on the east. The railroad is another attraction. This work is carried through rocks, over ravines and other obstructions, a distance of fourteen miles. It is employed in the conveyance of slates to Port Madoc from the Ffestiniog slate quarries. If we had time and other requisites which need not be mentioned here, we would spend ten days or a fortnight at Dolgelly as a centre, and from thence visit Cader Idris, Machynlleth, Towyn, Barmouth, Bala, and other interesting places. We would spend as long at Maentwrog, visiting Harlech, Tremadoc, Ffestiniog, the cataracts, and other notabilities of this charming spot. We sojourned here just an hour, and passed by Tan-y-bwlch inn and up the hill, the nearest way to Beddgelert, ten miles distant.

The road from Maentwrog to Beddgelert is not very interesting to the picturesque seeker, for, with the exception of about a mile from Tan-y-bwlch and a mile and a half before reaching Beddgelert, the scenery is not very striking. To a dweller in London, where brick walls, blue or red roofs, and the unvarying dingy chimney-pots, with the muddy or dusty streets below, are the only stationary objects, the extensive, open, long views over fields, moors, woods, and water, with the fine hills and mountains forming a background, never failed to afford genuine pleasure. Endow a man with a sturdy pair of legs, a well-equipped marrow-bone stage, an unencumbered mind, a clear conscience, a few pounds and half-crowns or shillings in his purse and pocket, for the sake of avoiding trouble in seeking *change*, and if he is not pleased, that is, provided he loves the country, he is what we do not like to say, but the first of April may help our readers to our meaning. Near Pont Aberglaslyn the scenery improves wonderfully. At this bridge and river, the boundary between Merionethshire and Carnarvonshire, the aspect of the whole is wild and terrific. There is just room for the road and the stream, which tumbles over huge fragments of rock which have been detached from the overhanging rocks above. Bingley conjectures that this is the part of Wales described by Giraldus Cambrensis as the most dreary place in the kingdom, where the mountains are so high, steep, and narrow, that the shepherds talked or quarrelled on the tops, and were a day's journey apart; and Drayton seems to have followed him in his opinion, as we learn from his unpolished lines:—

> "Of all the Cambrian shires their heads that beare so hie,
> And farth'st survay their soyles with an ambitious eye,
> *Mervinia* for her hills, as for their matchless crowds,
> The nearest that are said to kisse the wandering clouds,
> Especial audience craves."

We offer another conjecture, just as plausible as Mr. Bingley's, for we do not find that Drayton ventures a conjecture as to the meeting of the shepherds, but the poet is rather to be understood as telling us of the meeting of the hills. The adage says,—

> "Men may meet, but mountains never."

We quote Drayton again, where he is reporting the confabulation of the hills. *Montes loquuntur*:—

> "We talk howe we are stored, or what we greatly need,
> Or howe our flocks doe fare, or howe our heards doe feed,
> When else the hanging rocks and vallyes darke and deepe,
> The sommer's longest day would us from meeting keepe."

Our conjecture is, that Merionethshire and Carnarvonshire have been much changed since the times of Giraldus. Shepherds imply sheep, and sheep imply something to eat—some pasture, but at Aberglaslyn there is hardly enough to keep a field-mouse alive. There is barely standing-room for a sheep; nothing to feed it.

About the skirts of the mountains, on ledges here and there, we saw a few starvelings, but no shepherd, nor any employment for him; hence we hazard another conjecture—that the whole is a poetic embellishment.

From this celebrated pass we walked on to Beddgelert, the grave of Gelert, the dog celebrated in the legendary story of Llewellyn's child, saved from a wolf by this faithful animal. The prince perceiving blood on his hound's jowls, thought that the dog had killed the child, and in a transport of grief and anger killed its preserver. He subsequently noticed both the wolf and the child, the former dead, the latter smiling at the sight of its father. The hound's name, Gelert, is said to be a corruption of the British *cîlhart* (kill-hart), and a church is said to have been erected over his grave. From this romantic incident the Welsh proverb is derived, "I repent as much as the man who slew his greyhound."

Here a heavy rain detained us from twelve o'clock all the afternoon and evening, and compelled us to roost here for the night and walk to Llanberis next morning. The rain of the previous day and night filled the channels of all the rivers and mountain torrents, and in the morning most striking views of numerous cascades were obtained. These rushed down from the mountains and seemed in the distance like long, narrow, crystalline lines, and on a nearer view appeared in their true character of water, impetuously dashing down into the lakes and rivers below.

We travelled along Nant Gwynant (the vale of the stream), one of the most beautiful vales in Wales, where vales are many and of surpassing beauty. About a mile from the inn on the left is a lofty rock, mostly covered with wood, called Dinas Emrys, where once

> "Prophetic Merlin sate, when to the British king
> The changes long to come auspiciously he told.
> * * * * * *
> Which truly he foretold proud Vortiger should lose,
> As when him from his seat the Saxons should depose.
> * * * * * *
> That dreaming wizard told * * *
> From the top of Brith so high and wondrous steep,
> Where Dinas Emris stood, etc. etc."—*Drayton*.*

Llyn y Dinas (the pool of the fort) is a small lake a little further on. Near to this little lake there is another, called Llyn Gwynant, which is on the traveller's left as he passes from Beddgelert to Pen-y-Gwryd. The scenery in this vale can scarcely be exceeded. Grander scenes there are many, even in Britain; but this charming valley unites grandeur with loveliness. The mountains of Merionethshire, which separate this vale from the vale of Ffestiniog, are the southern boundary, and the extended spurs and frowning buttresses of Snowdon bound it on the north. The bottom and sides on the Beddgelert end are well wooded, and between the two little lakes there are two or three most picturesquely situated and very comfortable-looking cottages; besides these there is no house between Beddgelert and Pen-y-Gwryd, which we reached between eight and nine o'clock, ready for breakfast. The only interesting plant noticed was *Parnassia palustris,* not so common in the parts of Wales where we journeyed as we had expected.

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* Polyolbion, fol. p. 158 *et seq.*

On the Wimbledon Station of Anemone apennina.

We beg our correspondents to inform us if they have ever met with the above-mentioned plant in any other station than a garden or in a place where it was certainly planted. It is well naturalized in the gardens of Wimbledon Park, and under the trees in the shrubberies, but we have never seen it in woods at Wimbledon. As the woods are extensive, it may be found in them; but is it so? We visited Wimbledon on the 19th of April last, and saw the plant growing vigorously and in profusion, accompanied with immense patches of *Eranthis hiemalis,* which we have seen in Lincolnshire, on a site

> "Where once the garden smiled,
> And still, where many a garden flower grows wild."

Under the shade of the same trees which protect the *Blue Anemone,* grow also *Tulipa sylvestris,* one plant of which only was seen in flower, also *Ornithogalum nutans* and *Symphytum tuberosum;* the latter, it is believed, never found in the south of England, except where it has been planted. The natural production or non-production of a plant or plants in any country or locality is a fact, not an opinion. But where a plant is found associated with exotic or distant plants, that plant, whatever may be its antecedents, is justly to be regarded as a species introduced with its neighbours. This opinion is founded on a fact, or it is a legitimate inference from facts. It may not settle the question, Is the plant a native? but it may be decisive in reference to the nativity of the plant in the station in question.

Our question is, does *Anemone apennina* occur anywhere about Wimbledon Park, except within the garden-fence, the private pleasure-grounds of the noble occupier of this noble seat?

A Catalogue of certain Plants growing wild, chiefly in the environs of Settle, *in Yorkshire, observed by* W. Curtis, *in a Six Weeks' Botanical Excursion from London, made at the request of* J. C. Lettsom, M.D., F.R.S., *in the months of July and August,* 1782.

Few readers of the 'Phytologist' probably possess the interesting list of plants observed by Mr. Wm. Curtis about Settle (and printed in his 'Flora Londinensis') during a six weeks' botanical sojourn in that town.

1. *Hippuris vulgaris. Mare's-tail.*
Limnopeuce. *Raii Syn. ed.* 3. *p.* 136.

In the lakes on Brigstear Moss, about four miles from Kendal, plentifully.

2. *Ligustrum vulgare. Privet.*
Raii Syn. p. 465.

In Grass Wood, near Grassington, about two miles from Kilnsay, not uncommon.

3. *Pinguicula vulgaris. Common Butterwort.*
Pinguicula Gesneri. *Raii Syn. p.* 281.

Common on every bog.

4. *Utricularia vulgaris. Common Hooded Milfoil.*
Lentibularia. *Raii Syn. p.* 286.

In the greatest plenty with No. 1. Flowers in August.

5. *Schœnus Mariscus. Long-rooted Bastard Cyperus.*
Cyperus longus inodorus sylvestris. *Raii Syn. p.* 426.

On the edge of Conzic Tarn, or Lake, about two miles from Kendal, in the greatest abundance and highest perfection, some of the flowering stems growing to the height of four or five feet.

6. *Schœnus nigricans. Black Bog-rush.*
Juncus lævis minor panicula glomerata nigricante. *Raii Syn. p.* 430.

Plentifully on a bog in Skirrith Wood, near Ingleton, and most other bogs in the north.

7. *Schœnus compressus.—Blysmus compressus,* Panz. *Flat-headed Bog-rush.*

Gramen cyperoides spica simplici compressa disticha. *Raii Syn. p.* 425.

Not uncommon in wet boggy places about Ingleton, Settle, etc.; near Giggleswick Tarn* in plenty; flowers in August.

8. *Schœnus albus.—Rhynchospora alba,* Vahl. *White Bog-rush.*

Cyperus minor palustris hirsutus paniculis albis paleaceis. *Raii Syn. p.* 427.

On Brigstear Moss, No. 1 in abundance.

9. *Scirpus cæspitosus. Heath Club-rush.*

Scirpus montanus capitulo breviori. *Raii Syn. p.* 429.

Frequent on moors, amongst the heath or ling.

10. *Scirpus acicularis. Eleocharis acicularis,* Br.

Scirpus minimus capitulis Equiseti. *Raii Syn. p.* 429.

On the edge of a rivulet near Giggleswick Tarn, which runs from the ebbing and flowing well.

11. *Eriophorum vaginatum. Single-headed Cotton-grass.*

Juncus alpinus cum cauda leporina. *Raii Syn. p.* 436.

On peat bogs frequent, in the ascent to Ingleborough Hill.

12. *Melica montana.—?M. nutans,* Lin. *Mountain Melic-grass.*

In Skirrith Wood, near Ingleton, and in Grass Wood, near Kilnsay, not uncommon.

13. *Festuca ovina,* var. *vivipara. Viviparous Sheep's Fescue-grass.*

Gramen sparteum montanum spica foliacea graminea majus et minus. *Raii Syn. p.* 410.

On the crags near the summit of Ingleborough, and on the rocks of Longsledale, about ten miles from Kendal, plentifully.

14. *Festuca elatior.—F. arundinacea,* Schreb. *Tall Fescue-grass.*

Gramen arundinaceum aquaticum panicula avenacea. *Raii Syn. p.* 511.

On the sides of the river Ribble, near Settle, plentifully.

15. *Bromus giganteus.—Festuca gigantea,* Vill. *Tall Brome-grass.*

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[*] The tarn near Giggleswick has been drained. The former site is a meadow, but the plant mentioned still grows there. This is stated on the authority of Mr. J. Tatham, of Settle.

Gramen avenaceum glabrum, panicula e spicis raris strigosis composita, aristis tenuissimis. *Raii Syn. p.* 415.

Plentifully under the stone walls in the road from Settle to Giggleswick, and elsewhere.

16. *Bromus hirsutus.—B. asper,* Lin. *Hairy-stalked Brome-grass* (Fl. Lond.).

Gramen avenaceum dumetorum panicula sparsa. *Raii Syn. p.* 51; nemoralis, *Hudson, Fl. Angl.*

Not uncommon in the woods and hedges in Yorkshire, especially about Carrend Wensleydale.

17. *Triticum caninum. Bearded Wheat-grass.*

Gramen caninum aristatum radice non repente. *Raii Syn. p.* 58.

Plentiful with the last-mentioned grass.

18. *Cynosurus cæruleus.—Septeria cærulea,* Scop. *Blue Dog's-tail Grass.*

Gramen parvum montanum spica crassiore purpureo-cæruleo brevi. *Raii Syn. p.* 399.

There is no character in this grass which would induce one to consider it as a *Cynosurus.* Several botanists of the first eminence make a distinct genus of it, and apparently with much propriety. I first found it on the rocks near Settle, and afterwards on the rocks and tops of the hills generally in the north. From its being in seed when I discovered it, which was the latter end of July, it must be one of the earliest grasses in flower; and of all that I have ever seen, is by far the most hardy. The *Poa pratensis,* in this respect, approaches the nearest to it, and is very similar in its foliage. The botanist and the farmer are both interested in the further investigation of this alpine plant.

19. *Scabiosa Columbaria. Mountain Scabious.*

Scabiosa minor vulgaris. *Raii Syn. p.* 191.

Frequent on all the limestone rocks.

20. *Plantago maritima. Sea Plantain.*

Plantago, an alpina angustifolia? *Raii Syn. p.* 315.

I found this plant very unexpectedly in the road leading from Kilnsay to Arncliff, in great abundance; and afterwards discovered it on the sides of many of the mountains thereabouts. I could discover no difference betwixt it and the Sea Plantain growing at Gravesend.

21. *Sanguisorba officinalis. Great or Meadow Burnet.*

Sanguisorba major flore spadiceo. *Raii Syn. p.* 203.

Common in most of the pastures; in some of which it is the principal plant. The farmers were much divided in their opinions respecting its goodness. It produces a large but late crop; grows frequently to the height of four or five feet; but its stalks are hard, and apparently unfit for fodder. Some have suspected this was the species recommended to have been cultivated some years since; but Dr. Watson, whose authority will not be disputed, assures me it was the Lesser Burnet, whose chief excellence consists in affording foliage early in the spring, a property the present plant cannot boast of.

[Nos. 2, 3, 6, 8, 9, 11, 14, 16, 18, 19, were noticed by the annotator while botanizing about Settle, in September, 1852.]

(*To be continued.*)

Reviews.

The Ferns of Great Britain. Illustrated by JOHN E. SOWERBY, Proprietor of Sowerby's English Botany. *The Descriptions, Synonyms, etc., by* CHARLES JOHNSON, ESQ., Botanical Lecturer at Guy's Hospital.

Dr. Lindley, several years ago, included upwards of 2000 species of Ferns in his Filical Alliance, and Kunze estimated the species at 3000. We should, from the estimates of Humboldt and Brown, and from the collections of Wallich, infer that they amount to nearly double the higher of these two estimates. They constitute one thirty-fifth of the prominent plants of Britain, and one thirty-first of the phænogamous vegetation of Scotland. During the last twenty years the literature of Ferns has made rapid advances, quite as extensive as the knowledge of the plants themselves. This however we will make the subject of another article, and will here limit ourselves to a brief notice of the contents of the handsome work now before us. Both the authors are well known as men of eminence in their profession. They need no commendatory notices from us, and we believe our readers would rather have a summary of the contents of their work than any adulation of its authors. The pictorial part of the work contains coloured or partly coloured engravings of all the British species. The fronds are usually delineated of the natural size, with additional magnified drawings of pinnules (secondary divisions), exhibiting the fructification and venation, or nervation. The rhizomes, with the gyrate state of the frond before expansion, are generally represented. The hereditary genius and skill of the artist are ample guarantees that the drawing and colouring represent the characteristic habits and appearances of the plants represented.

The letterpress portion of the work, which amounts, with the index, to 88 pages, comprehends a brief introduction on the nature and object of the work: an explanation of scientific terms applied solely to objects of this family, together with some general rules for their cultivation. This, with the classification, amounts to 8 pages; the remaining portion is confined to the description, the localities, and the cultivation of the individual species. The generic and specific descriptions are concise and technical; but these are followed by copious accounts of the frequency or rarity of the species, its habitats, its localities, and its characteristic habits, together with remarks on its size, outline, etc. We will now give our readers a sample of Mr. Johnson's directions for growing Ferns.

As *Draining media* he recommends: "1. Shards or fragments of garden pots broken to the size of an inch, or larger. 2. Fragments of sandstone, limestone, slate, etc., for forcing into the soil around the roots in planting. 3. Charcoal broken into pieces from the size of a filbert to that of a walnut." As *Soil:* "1. Peat or bog-earth; the best is that of a blackish or darkish hue and spongy texture. 2. Decayed leaf-mould, or rich garden soil. 3. Loam; the best is of a yellowish hue, containing much vegetable fibre. 4. Sand; the white silver sand being preferable, though not essential. 5. Mortar from old buildings."

A compost of the first four in equal proportions is recommended, with the fifth for occasional use. "The spot where the Ferns are to be grown should be sheltered from the direct rays of the sun, and if possible, not subject to the drip of trees. A bank of loose soil or garden mould mixed with brick rubbish and old mortar should be thrown up to the height of from two to four feet above the general level. In this bank, when settled, excavations are to be made for such species as require most moisture. In planting it is sufficient to supply the compost soil to the depth of 5 or 6 inches around the ball of the root. Around the deeper excavations for the marsh and flowering ferns (*Osmunda regalis*), a wall of loose porous stones, or old bricks with a mixture of sandy peat or decayed mortar spread between them, will afford a congenial site for the smaller rock species, especially those of the genus *Asplenium*. To prevent evaporation, irregular masses of stone and cemented brick from the kiln or old furnace may be scattered upon the surface around the roots of the ferns. These will retain a considerable degree of moisture, and at the same time afford shelter to the foliage."

As examples of the author's mode of treating these beautiful objects in the vicinity of London (we suppose the author's collection is so situated), we refer to his mode of treating the more difficult species of the genus *Asplenium, A. Ruta-muraria, A. Trichomanes, A. viride,* and especially *A. marinum,* pp. 49–56. To the student, and especially to the cultivators of the British Ferns, we confidently recommend this treatise, as the plainest and most practical work which is obtainable on the subject.

A Supplement to Baines's 'Flora of Yorkshire,' *with a Map.*

Part First: The Flowering Plants and Ferns. *By* JOHN GILBERT BAKER.

Part Second: The Mosses of the County. *By* JOHN NOWELL.

[Second Notice.]

Before leaving this subject, viz. county or local floras, we may advert to the fact, that while some of our counties have several floras, as Oxford, Cambridge, York, etc., several have one, as Devon, Bedford, Sussex, Salop, and Herts. Many counties have none at all, not so much as a list of plants; no modern list, at least. We believe Lincoln would repay any resident botanist the labour of collecting the facts for a county flora. We are not aware that any such are in existence, though its large extent of sea-coast, its heaths and open commons, fewer and smaller in extent than they were fifty years ago, would probably reward a diligent collector with many plants of interest, and some probably of novelty. We would further state that there are counties in the immediate vicinity of the Metropolis, and among these the Metropolitan county itself, which have neither flora, nor even lists of plants, except the meagre lists in Mr. Gough's 'Camden,' a work not often consulted by botanists, except where more comprehensive and trustworthy accounts are not in being. We hope Mr. Salmon will be encouraged to proceed with his 'Flora of Surrey,' for which large collections have been made. We will not throw cold water on his good intentions, even although he do not extend his researches into the adjoining counties of Sussex and Kent, and give us a Flora of the peninsula lying between the Thames and the Channel. We will be thankful for the 'Flora of Surrey' as an instalment, and we are sure that the thanks of the fraternity will be his sole reward. We are stingy indeed if we refuse this. There are materials for a Flora of Middlesex, North Kent, and Essex, existing partly in MS., partly in the pages of the 'Phytologist,' and partly in the 'Magazine of Natural History,' and in other works devoted to the progress of botanical science. We would propose a Metropolitan Flora, not on the plan of the late D. Cooper's 'Flora Metropolitana,' nor of any existing work on local botany. Most of these works are too expensive for those botanists who have most need for them and who would make most use of them. Their price varies from four or five to twelve shillings. The latter sum ought to set up a local botanist with all appliances needful for the successful prosecution of the study. Another objection to most of our local floras is, that they are too bulky, and on this account the herborizer has to make out a list of localities in that part of the country he means to visit. Another objection is, that they are limited by artificial, not natural, boundaries. The political division into counties is requisite for legal, but not for scientific purposes. The natural boundaries do not always coincide with the civil; but even when they do,—for example, when a river is the boundary, as the Thames is between Surrey and Middlesex,—the same plants are found indifferently on either side of the river. For local floras we prefer blocks or tracts of country, say from twenty to thirty miles round a centre such as London, York, Nottingham, Salisbury, etc.; or river-basins, as the valley of the Thames, bounded by the Surrey downs on the south and the Bucks and Berks downs on the north; the Wealds of Kent, Surrey, and Sussex, and the like. But for convenience we would adopt an area of from twenty to twenty-five or thirty miles round about a large central town or city.

Plants which are universally distributed might be dismissed with a very brief notice, and these might perhaps be as profitably classed by their habitats as by their relations to each other. They will never be collected for exchange, and but rarely for the herbarium, as they are supposed to be of universal occurrence, and will readily be procured in their seasons. We think that not much above half the vegetation of a tract need be formally classified nor followed with any notification of localities. The area of a tract having a radius of thirty miles, or a diameter of sixty miles, would be about 2900 square miles, or rather less than one-half of the superficial area of Yorkshire. As the Metropolitan counties, at least to the extent of thirty miles from London, do not reach the sea, and there is less variety of soil and altitude than there is in Yorkshire, the number of species in the London district thus bounded would not probably exceed 900, or would be 100 fewer than the Yorkshire plants. We think a very slim, portable, and cheap volume would contain all desirable information in reference to the statistics and distribution of these species.

Iconum Botanicarum Index locupletissimus; or, an Alphabetical Register of upwards of 86,000 *Representations of Phanerogamic Plants and Ferns, etc. etc. By* GEORGE AUGUSTUS PRITZEL, Ph.D., etc. London: Pamplin; Williams and Norgate.

This elaborate work is a worthy companion to Steudel's 'Nomenclator Botanicus ;' an entirely original compilation; a very valuable work for reference; and when its utility is appreciated, it will doubtless be in the hands of every scientific botanist.

We have called it an original compilation because there is no previous compilation of this nature in botanical literature.

The title precisely expresses its object. It is an index of botanical figures or representations of plants. The care bestowed on it may be conceived from the author's statement "that in spite of my great desire of completeness, I have nevertheless been obliged to reject more than 100,000 delineations as worthless." The author further states that consistency constrained him to reject "single good original drawings in works like *Loudon's Arboretum, Berg's Charakteristik der Pflanzengenera, Le Maout's Leçons Elémentaires*, etc., that have been passed over without mention." "I can only defend this by the principle I had laid down for myself, viz. having once selected a work for reference, to quote it throughout; this did not seem advisable in the case of the above-mentioned works, on account of their containing so many illustrations that could well be dispensed with." *See* preface, p. ii.

The number of references to figures is, as intimated in the title, 86,000.

The number of species, estimated by taking 7 columns at random, and multiplying the average number of species in these by the number of columns (1184), is between 45,000 and 50,000. The average number of references to each species would be nearly two. But the great majority of the species has only one reference, some two. *Saponaria officinalis* has 18; *Pinus sylvestris,* 21; *Plantago major,* 16; *P. media,* 9; *P. lanceolata,* 10; *P. arenaria,* 7; *Hippophae rhamnoides,* 15; *Hippuris vulgaris,* 16; *Drosera rotundifolia,* 13; *Dryas octopetala,* 12; *Botrychium Lunaria,* 11; *Carex arenaria,* 12; *C. acuta,* 8; *C. atrata,* 7; *C. axillaris,* 6; *C. lævigata,* 4.

The number of species set under *Hypericum* is 131, and the number of citations is 219. We subjoin the following as a specimen of a work which will save literary botanists a great deal of unpleasant labour :—

Woodsia alpina, *Newm.*	Newman, p. 143, 147.
elongata, *Hook.*	Hooker, Sp. Fil. 21.
glabella, *R. Br.*	Hook. Bor. Am. 237.
guatemalensis, *Hook.*	Hook. Sp. Fil. 21.
hyperboræa, *R. Br.*	Linn. Trans. xi. 11. Hook. Gen. Fil. 119. Kunze, Analecta, 27. Newman, p. 143, 147. Sowerby, Ferns, 6.
ilvensis, *R. Br.*	Engl. Bot. 2616. Newman, p. 136, 137. Sowerby, Ferns, 5.
var. γ, *Bab.*	Newman, p. 143, 147.
incisa, *Gill.*	Hook. Ic. Fil. 2, 191.
Perriniana, *H. et Gr.*	Hook. Ic. Fil. 1, 68.
peruviana, *Hook.*	Hook. Sp. Fil. 21.
pubescens, *Spr.*	Acta Leop. x. 1, 16.
Xylomelum occidentale, *R. Br.*	Hook. Ic. Plant. v. 446.
pyriforme, *R. Br.*	Rchb. Hort. 90. Endl. Iconogr. 47, 48.

The Flora of Liverpool. By Joseph Dickinson, M.A., M.D., F.R.S. L. and E., President of the Liverpool Literary and Philosophical Society, etc.

A local flora is always welcome to the students of British plants, and will be duly noticed in the pages of the 'Phytologist.' The author in a note informs his readers "that this treatise is founded on the basis of 'Hall's Flora,' and reprinted from the proceedings of the Liverpool Literary and Philosophical Society."

There is prefixed to the work a brief account of the physical, geographical, and atmospherical conditions of the district to which this Flora is confined.

The lat. is 53° 23′ N., long. 2° 54′ W. The country is flat, with slight undulations.

The prevalent strata are the new red sandstone, consisting of friable sand, marl, clay, sandstone, micaceous slaty clay and quartzose sandstone, all in regular strata. The mean annual fall of rain is stated to be 28·05 inches, and the mean annual temperature 49·9° Fahr. The area embraced in the work is fifteen miles from Liverpool on all sides, except where it is bounded by the sea. We have made a rough calculation of the number of species entered in the Flora, and we subjoin the result :—

Phænogamous plants,	780 species.	Dicotyledonous plants,	600 species.
Filices and their allies,	32 ,,	Monocotyledonous ditto,	180 ,,

We believe that the 'Flora of Godalming,' in Surrey, as collected and prepared for the Botanical Society of London by Mr. Salmon, contains nearly as many plants (species) as the 'Flora of Liverpool.' The area of the Godalming district is about 50 square miles, 4 miles from Godalming, or a circle having a diameter of 8 miles and a radius of 4. The area of the semicircular tract embraced by the 'Liverpool Flora,' with its diameter of 30 miles and radius of 15, after deducting the western side of the circle, cannot be much less than 350 square miles, or about seven times the area of the Godalming tract as limited above. We may also take into the account that although one-half of the circular tract is covered by the sea, yet the deficiency of vegetation arising from this cause is partly supplied by the presence of maritime plants, which of course do not occur in Surrey. Hence it is to be inferred that geological relations have considerable influence on the distribution of species. How far these geognostic conditions are modified by temperature, moisture, and other local peculiarities, we beg to submit to those who are best qualified to give an opinion on such questions.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Linnæan Society, April.—A specimen of *Epipogium aphyllum*, gathered by Mrs. Anderdon Smith in a woody dingle on the banks of Safey Brook, Tedstone, Herefordshire, in July, 1854, was presented by Mr. E. Lees. At the same meeting a paper by Mr. Bunbury was read, on the Botany of Madeira and Teneriffe. The botanical features of the latter-named island are the following:—first, the coast region abounds in succulent *Euphorbias*, closely resembling the succulent plants of Caffraria. These and several other semi-tropical species give a peculiar aspect to the vegetation of this littoral tract. Here grow several Ferns, viz. *Ceterach aureum* (which Mr. Bunbury thinks a variety of *C. officinarum*), *Gymnogramma leptophylla*, *Adiantum Capillus-Veneris*, and *Polypodium vulgare*. In this region Date Palms and Dragon-trees are cultivated. The striking and peculiar forms of shrubby species of *Rumex* (Dock), *Echium*, *Solanum*, and *Sonchus* abound in the ravines. Trees of the Laurel type of foliage prevail in the second, or woody region, where *Erica arborea* abounds, and attains to a surprising size in favourable localities. We wish Mr. Bunbury would be so kind as to send us the dimensions of the largest of these gigantic Heaths. Ferns and hypnoid Mosses abound in shady places, and species of *Cistineæ* and *Genisteæ* in the dry and open grounds. The third, or upper zone, is occupied by species of Papilionaceous shrubs, which grow at a greater altitude than trees reach.

In the 'Gardeners' Chronicle' of the 28th April there is a very elaborate and interesting account of casualties at the Botanical Garden, Glasnevin, Dublin, the results of the late severe winter. The account is too long for insertion in our columns, and cannot be abridged without impairing its usefulness and interest. We intend to devote a page or so to a brief article on this subject.

In Parliamentary Paper 1, there is a full report of the state of Kew Gardens, which are now annually visited by hundreds of thousands of persons. In 1841, when Kew Gardens were first opened to the public, the number of visitors in said year was 9174; last year, 1854, the number was 339,164. The additions to the novelties, rarities, and useful articles we cannot report, but merely inform our readers that increased accommodation is needed.

We beg to notice a new feature in this useful national institution, viz. the establishment of a Herbarium and Botanical Library. In 1853 a commencement was made in supply of these desiderata, when two valuable libraries and herbaria were presented, the one by Miss Bromfield, sister of the late Dr. Bromfield, Isle of Wight, the collector of both, and the other by Mr. Bentham, of London. Both these were, by the intentions of the donors, to be available to the public, under certain restrictions. Another (we suppose a still greater benefaction) has been given to the public by the Director, whose private herbarium (surely a very extensive and interesting one) together with his library has been placed in the precincts of the Garden with the same object—the accommodation of the public. Drawings of plants by several individuals have been presented by Miss Cathcart; a large collection, prepared by the late Mr. Aiton, has been presented by Mr. Atwell Smith; also the entire botanical correspondence of the late Dr. Wallich, of Calcutta.

Derivation or Etymology of Orpine (*Sedum Telephium*).—The term in question is French. It is a synonym of *orpiment*, a sort of ochre (an oxide) of a deep yellow colour. *Orpiment*, *Orpin* (m.), *Orpiment, a kind of oker of the colour of gold*—See Miege *in loco*. *Or* is *gold* in the French language, and is derived from the Latin *aurum*, the root, without the termination, which the French language usually rejects in its formations from the Latin. *Piment* or *pigment* is from the Latin *pingo*, I paint, the supine of which is *pictum*, hence pigment. The Latin *aurum* is from the Greek αυρον, hence *thesaurus* and treasury; also *Aurora*, an allusion to the ruddy or yellow colour of the sky before the rising of the sun. The French also employ the term *Orpin* as the popular name of several species of *Sedum*, whether the colour of the flowers be yellow, like gold, as many *Seda* are, or white or pink, as *Sedum album* (*Orpin à fleurs blanches*), *Sedum acre* (*Orpin brûlant*), and our plant *Sedum Telephium* (*Orpin repris*) or *Orpin*. The generally yellow colour of the flower of the *Seda* is expressed by the first part of the term *Or*, or αυρ, or Heb. אור, *Aor*, *light;* and the last part is probably from πιαρ and πινος, *fat*, in allusion to the thick or fleshy or fat leaves.

Early-flowering Plants, April, 1855.—In Battersea Fields on the 27th of March the only plant in flower was Chickweed (*Stellaria media*). This species is as genuine a cosmopolite as man himself is. There are few localities where it fails, but it is most prolific in the neighbourhood of human habitations. The Chickweed was in flower long before Groundsel and Red Archangel. In mild winters these three are all found in flower before spring; in severe winters the Chickweed flowers a considerable time before the other early-flowering species. A solitary Daisy appeared on the 9th of April in the same locality, where there appeared successively the following, viz.: Shepherd's Purse, April 12; Red Archangel, *Tussilago* (*Farfara*), and Groundsel, April 13th; *Lamium amplexicaule*, *Veronica hederæfolia*, on the 14th ditto; Dandelion, 18th; *Veronica agrestis*, *Viola odorata*, at Wimbledon, on the 19th. The Violet had been in flower for some time before it was noticed; so had the common Furze. *Glechoma hederacea*, *Cardamine pratensis*, *Lamium album*, and *Caltha palustris* appeared in flower on the 24th. *Amygdalus Persica* was in flower about Chelsea on the 17th, and a single Horse Chestnut-tree was in leaf in Hyde Park on the 25th. *Note.*—It is only in a very severe season that the first flowering plants can be certainly ascertained; in mild weather the above and other similar species are always in flower.

Retrospective.—Was *Linaria Cymbalaria* (see p. 5) known to the older botanists as a native of Britain? Mr. Gissing, of Worcester, has called attention to the fact that it occurs in Dillenius's edition of Ray's Synopsis; still, so far as Ray himself is concerned, no mention of the plant is to be found either in his 'Catalogus' or in his 'Synopsis;' the record of it by Dillenius in *his* edition (Raii Syn. p. 282, ed. iii., 1724) bringing it to about twenty years after Ray's decease. But it is curious that both Parkinson (1640) and Johnson (1641) include it, though with some hesitation, among our native plants: the former, who gives a tolerably characteristic cut of the plant (Park. Theatrum Botanicum, p. 681), tells us:—"It groweth naturally in divers places of our land, although formerly it hath not been knowen to bee but in gardens, as about Hatfield in Hartfordshire, etc., as also upon the thatched houses in the north parts, and most abundantly in Lancashire, etc." The next mention we find of it is in Johnson's Mercurius Botanicus, at p. 19 of the 'Pars altera Mercurii Bot. 1641;' then comes Dillenius, as above referred to, who inserts it, on the authority of Dr. Richardson, as occurring in the county of York. Have any other early notices of it been remarked by our readers?

A correspondent from Worcester wishes the following inquiry made:—Has any botanist found *Orchis hircina* in Suffolk since 1850? and if so, in what part of the county?

T. G. (Waltham Abbey) inquires—Where is the first recorded notice to be found of *Dentaria bulbifera* as a British plant?

In reply to the inquiry of *Belgravia*, the vine-like plant which is trained over the front of a house near Halkin-terrace, Belgrave-square, is *Vitis riparia* of Michaux, Pursh, and others (Bot. Mag. 2429), a North American species, with sweet-scented flowers, but it is rarely seen in cultivation here: the one in the above-named locality is the sterile plant (it is diœcious). Query, is the fertile state of this Vine known at all in England?

Will Mr. Lees, our kind contributor, send us a brief account of the history of the discovery of *Epipogium aphyllum* in Herefordshire? A specimen or a description of the plant would be very acceptable.

Communications have been received from

Mr. Woods (Lewes); Mr. Gissing; Mr. J. G. Baker; E. H. S.; O.; Mr. Isaac Carroll; Dr. W. L. Lindsay; Belgravia; Mr. George Dixon; Mr. J. J. Packer; Mr. J. Fenton; Mr. J. T. Syme; T. G.; and Mr. J. A. Kidd.

BOOKS RECEIVED FOR REVIEW.

Moore's Handbook of British Ferns.
Johnsoni Opuscula omnia Botanica nuper edit. T. S. Ralph.
Lindley and Moore's British Ferns, illustrated by Nature Printing.
Dixon's Classified List of British Mosses.
Packer's List of British Mosses.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

On the Hieracia *of North Yorkshire and Teesdale.* *By* JOHN G. BAKER.

"Neque de veritate naturæ in Hieraciis extricandis desperemus, quamvis arduus sit labor: modo omnia prejudicia mittamus, v. c. studium species sive contrahendi sive multiplicandi, assidui formas in natura typicas inquirentes."—*Fries, Symb. ad Historiam Hieraciorum, pref.* p. 1.

On all hands it is admitted that our British *Hieracia* are at present involved in a very considerable degree of confusion. The wide discrepancies which exist between the views and conclusions of the principal authors who have during the last few years attempted to describe and classify the species which represent the genus in the flora of this country, have already been pointed out and commented upon in the 'Phytologist' (*vide* vol. iv. p. 177); and in the most recently published list of British plants, the fourth edition of the Catalogue of the London Botanical Society, no less than eighteen species (or supposed species) which are either "not distinctly ascertained to occur in Britain, or ambiguous otherwise," are enumerated. When such is the state of things, it is no wonder that many of our botanists, to quote the words of the most illustrious exponent of the genus, feel almost disposed to regard it as "vague and anomalous."* And that we find the author of the 'Cybele,' when desirous of tracing out and treating upon the distribution of our British Hieracia (vol. ii. page 68), complaining that "this genus, like its geographically natural associate, *Salix,* has been rendered botanically odious by books."

The fact of the matter is, that a genus like *Hieracium,* where the characters of the species are susceptible of such a wide range of modification and variation under the influence of external circumstances, requires imperatively to be studied closely in the field, and not alone or principally in the closet. "Characteres," says Fries, "nullo modo sunt specierum criteria, tantum ad species discernendas adminicula." Characters are marks by which species may be known from one another, but their value may be tested only by their permanence.† For a long period our

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* "Frustraneum me suscepisse opus multi forsan judicent, fingentes hoc genus prorsus esse vagum, anomalum, vel, ut ita dicam, irrationale, *quale tamen non naturæ, sed auctorum culpâ factum est.*"—*Fries, Symb. loc. cit. suprà.*

† The reviewer (Phyt. iv. 177) to whose remarks allusion has been made above, would seem, from the following passage, to have appreciated differently the bearing

British botanists were content to believe that our native forms might be grouped under about a dozen species, without violence to nature. But more recently, the labours of Babington, and especially of Fries, have dissipated this opinion, and there is now a pretty general impression, that the number of distinct species which we really possess is considerably larger than was supposed during the Smithian era. And just in proportion as they are carefully watched and compared together in their natural places of growth amongst the rocks and woods, and under cultivation, shall we be enabled to grasp what is constant and permanent in the midst of embarrassing instability, and evolve orderly and accurate arrangement out of chaotic uncertainty.

It is not as though we possessed the complete chain of species—

> "Continuous as the stars that shine
> And twinkle in the milky way;"*

for, according to the most liberal computation, we have only about a fifth of the total number. Even compared with many other countries our proportion is small, for the Continent is the head-quarters of the genus, and we cannot doubt that the number of species which Britain produces is considerably smaller than is afforded by France, or Germany, or Italy, or Russia, or Scandinavia. Such being the case, the less difficulty will there be, we may well suppose, in arriving at a correct understanding respecting them. So that it must be our opprobrium if this chaotic "state of uncertainty be allowed to continue."

As a motto to explain the spirit of the present paper, I might suitably have quoted the remarks of the late lamented Professor Edward Forbes. He says, in one of his earlier writings, the real progress of natural history must ever depend on the detailed examination of the beings gathered around us by the laws of geo-

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of this dictum, for he remarks (with reference to the discrepancies between the views of different authors): "Nor indeed can it be wondered, for we see *little use in giving characters at all*, if Fries himself is to be credited; since he observes, 'Characteres nullo modo sunt specierum criteria, tantum ad species discernendas adminicula.'" I cannot see how the sentence will bear an interpretation that would involve such an inference.

* "Quemadmodum stellæ in via lactea ita stipantur, ut singulas ægre distinguere liceat, sic quoque Synanthereæ, centrum totius orbis vegetabilis sistentes, ob formarum copiam et varietatem ita confluere apparent, ut tam generum quam specierum limites ægre ponantur."—*Fries*, *Symb. pref.* p. 3.

graphical distribution, living and multiplying in their destined homes and habitats. The genus affords a most favourable field for the investigation of the influence exercised by the *media* of situation in the modification of specific types. It is not that I have much that has not been already published to furnish, or any novel combinations and subdivisions to propose; but through residing in a district which is perhaps as well furnished with *Hieracia* as any other tract of country in Britain of equal extent, I have enjoyed a favourable opportunity of studying several species in their natural places of growth, and of collecting specimens of them; and have thought therefore, that, as information respecting our British *Hieracia* is now so much in request, a series of brief notes upon the characters and geographical distribution of the *Hieracia* of North Yorkshire and Teesdale, as a kind of index to my published fasciculus of specimens, would perhaps be as acceptable a contribution as anything I might be able to furnish, in earnest of a hope for a long career of usefulness for the New Series of the 'Phytologist.'

Thirsk, North Yorkshire.

(*To be continued.*)

An account of Localities of some of the rarer British Plants and others noticed in North Wales by Mr. Pamplin *and* Mr. Irvine, *in September,* 1854.

(*Continued from page* 35.)

The road from the Beddgelert end of Llyn Gwynant is a gradual ascent all the way to Pen-y-Gwryd, having the mountain on the right hand and the lake on the left. The views of Snowdon over the lake are very grand, but the state of the atmosphere was so unfavourable that neither the summit, nor even any part of the sky outline of the ridge and peaks were visible. The mist hung over the upper portions, descending down the shoulders or buttresses of the mountain. Pen-y-Gwryd is situated at the junction of the Llanberis Pass road and the Capel Curig and Beddgelert roads. It stands on an elevated plain, which is very bleak, sterile, and cheerless; but it is a welcome sight to pedestrians, for it is the only house where refreshments can be had for eight miles on the west, four miles on the east, and nearly as much on the north. After breakfasting here, we started for the Pass of Llanberis, which we entered at a house recently erected, called Gorphwysfa, the half-way house on one of the ways from Llanberis to the top of Snowdon. This is the summit of the pass, and from this spot there is a gradual descent through the pass to the village. This place is quite unlike every other scene we had viewed in Wales. Its wild sterility and picturesque grandeur must be seen to be appreciated. We have seen many pictorial representations of this tremendously dismal glen, but they fail in conveying any adequate idea of its gloomy and savage aspect. The pen should not attempt to describe what the pencil cannot portray. We soon came in sight of the old tower, the remains of Dolbadern Castle, and were speedily at the extremity of our tour, for we purposed staying a few days at Llanberis and then to retrace our steps towards home.

The first object we visited was the castle, which is described by tourists as standing in a meadow between the two lakes. We found that the meadow had degenerated into a bog, which covered most part of the rock overhanging the lake. Neither this bog, nor the ruins themselves, afforded any interesting plants. The roadside, adjacent to Dolbadern, produces plenty of *Polypodium Phegopteris.* The moss-grown village of Llanberis has gradually disappeared within the last fifty years, or since Bingley's visit. It was so, no doubt, when he visited it. Many of the ancient habitations have disappeared, and have been succeeded by erections of a more permanent and commodious, if not of so picturesque an appearance as those that were described half a century ago. It is however still destitute of trees: the march of improvement has not yet softened this grim feature. All the houses are built in the same direction, to humour, as we may say, the pass, due north and south, having their fronts either towards Snowdon or toward Glyder Vawr. The inhabitants say that they are so built to preserve them from the effects of north winds, which are very violent at certain seasons. It is indeed always liable to violent gusts of wind. The houses, with the exception of a very few, appear to have been rebuilt within the last half-century or so. We noticed two or three that probably were unaltered since Bingley's visit. The two inns still exist, but they have been altered; for several persons have slept in one of them at least, during late years. When Bingley visited the village a bed was not to be had in the place. On the next morning after our arrival, we set out to take a stroll on the skirts of the Great Glyder, and speedily ascended to a considerable elevation up a very steep path, so far indeed that we resolved to extend our walk to Twlldu, although we did not mean to go so far when we set out. We did not attempt the rocky part of the Great Glyder, but contented ourselves with Llyn-y-Cwn (Greek κυων), the Lake of the Dog, where *Isoetes lacustris* grows, also *Lobelia Dortmanna* and *Subularia aquatica*. These do in a manner pave the little lake Llyn-y-Cwn. In the marsh adjoining were found *Chrysosplenium oppositifolium*, and other marsh plants, also on the rocks about the tremendous chasm of Twlldu, down which the waters of Llyn-y-Cwn rush into Llyn Idwal, through a chasm only a few feet wide and 200 yards high. Here we observed *Silene acaulis, Oxyria reniformis, Plantago maritima, Statice Armeria, Vaccinium Vitis-idæa*; also *Arenaria verna* in the crevices of the perpendicular rocks above Llyn Idwal, near the fissure of Twlldu and elsewhere, but not very generally distributed; and *Rhodiola rosea, Cochlearia officinalis, Gnaphalium dioicum, Saxifraga hypnoides*, and *S. stellaris* grow there also, but we were too late to see them in flower. We found a plant or two of *Lloydia serotina*, the rarest of all our British species; we believe it also occurs on the Snowdon side of the Llanberis Pass. *Carduus heterophyllus* and *Polystichum Lonchitis* grow on or about the Glyder, but we saw neither of them last September; Mr. Pamplin has however seen both. *Asplenium viride* we saw among these rocks. We were of course too late for *Thalictrum alpinum*, which grows there also. Bingley mentions *Saxifraga oppositifolia* and *S. nivalis*, a still rarer Saxifrage, as being the production of these rocks; we had not the pleasure of finding either of these. *Empetrum nigrum* occurs here, and *Lycopodium selaginoides* in the boggy parts of these elevated regions. This was pretty good botanizing for one morning. We were contented with the result and hastened home, which we reached in much less time than we spent on our toilsome walk up the very steep acclivity. We verified the old adage, *Facilis descensus Averni*. The Cambrian Poppy adorns many spots on the ledges of the mountain-torrents, all about the vale of Llanberis; but when it is within reach of cattle or sheep, you often find the plant without flowers and close cropped. It occurs occasionally with flowers of variously tinged shades, as coppery or faded yellow; but under all circumstances it is a plant of much interest and beauty. It often grows in the undisturbed *débris* of the slate-quarries.

Our next ascent was a feat; at least we believe most of our readers will admit that it partook of this character. At seven o'clock the day following we started for the summit of Snowdon, though our landlord warned us that the sky looked wild, which means stormy in Wales. Before advancing two hundred yards from our *hospice*, a violent shower drove us for shelter under the porch of one of the neighbouring houses; a very inauspicious beginning. Our route was by the Victoria, and the real ascent was begun about eight o'clock. A heavy shower compelled us a second time to retreat into the very last cottage on our left, about half a mile from the Victoria Hotel. Hence, when the rain somewhat abated, we plodded our weary way up the mountain in very unenviable plight. On reaching within a mile or two of the top, the wind blew a hurricane, and the sleety rain drove through all our upper clothing, and eventually soaked ourselves, or at least all our clothes. We saw nothing of course but the mist, which was close to our noses, and thick as a London fog. The best sight or view we had was the interior of one of the huts, which was a welcome shelter, and besides shelter it had a stove, at which we warmed our persons, dried our clothes, amusing ourselves with the entry-books kept for the signatures and remarks of the visitors. Here we stayed two or three hours, and left just as the fog was beginning to clear away; our ascent occupied about three hours, and our descent about two. Of course we saw little or nothing of the grand scenery, but just a little bit while we were descending, for the top was clear before we reached half-way down. Under such uncomfortable circumstances, it may readily be inferred that we added little or nothing to our botanical knowledge. The vegetation up the mountain from the Victoria is of a very commonplace character. *Lycopodium alpinum* and *Juncus squarrosus*, the latter a far from uncommon species, were observed. If botany had been our chief object, we would have pursued a very different procedure; and what we ourselves would have adopted, as the most effective plan for herborizing Snowdon, we will now communicate to our readers. Most people are better qualified to give advice to others, than they are to take it to themselves. If we had intended to botanize Snowdon, we would have taken the rail direct to Carnarvon, and walked or rode from hence to Llanberis, where we would have spent a fortnight at least; and instead of taking a morning's ramble up the Glyder, we would have spent a few days among the rocks of Twlldu, on the summit and about the Glyder Vawr, and among the hangers on the Bangor road, above the lakes and near the slate-quarries. On the right of the ascent to Snowdon, ascending from the Victoria, there is a rather extensive lake overhung by a vast perpendicular rock on the south side. This lake, and its rocky shores, we think would repay a long and strict search, and a day's botanizing here would surely be well spent. One day should be devoted to an examination of the plants that grow on the rocks about the summit; a few days might be spent in what is called the grand crater, at the base of Crib Goch, on the Gorphwysfa side, Ffynnon Vrech, etc. In order to investigate the vegetation of this strange place, we would sojourn a week at Pen-y-Gwryd, which inn is nearer the summit by two or three miles than any other place where quarters are to be had. A friend has shown us several specimens of *Woodsia ilvensis* from this part of the pass; and we have heard that the very rare *Lloydia* is found in this locality. Another week or ten days might be spent at Beddgelert, from which place the vegetation of the other side of the mountain might be investigated. Thus five or six weeks would be profitably filled up in the neighbourhood of Snowdon; and those who have time and money, and are in quest of exercise and fresh air, would not be ill-repaid for their labour, provided they can enjoy scenery and natural productions. By this means, a complete flora of this, the highest mountainous tract in England, might be prepared. On the 22nd we commenced our homeward route by Bangor, walking through the slate-quarries, Llanbaba and Pentir, to Bangor. In the hanging wood opposite Llanberis lakes there were noticed several *Hieracia*, none of which did we identify satisfactorily; but we should feel much pleasure in publishing the names of such as any of our able and obliging correspondents may have noticed in that locality. Several roses were observed, but, like the *Hieracia*, none were identified. Near Llanbaba we gathered beautiful specimens of *Allosorus crispus* growing out of the stone wall on the right-hand side of the road. Mr. Pamplin, near this place, finds at the proper season *Galeopsis villosa*, in fields and by the roadsides; and also *Trollius europæus* in grassy moist places. Bangor was reached in time for the one o'clock up-train, and we took our places to Aber, intending to walk the rest of the way to Conway. The shore was on our left, and the mountains on our right hand. At Aber and Llanfair, and all the way along the coast to Penmaen-mawr, we observed *Lavatera arborea* in most of the cottage gardens, and one solitary seedling-plant by the roadside. The sea-shore abounded with *Eryngium maritimum* and *Euphorbia Paralias.*

After passing through the village of Penmaen-mawr we left the new road and took the mountain way over the lesser Penmaen, and reached Conway, wet and weary, between six and seven o'clock in the evening, after a very fatiguing but interesting walk of above twenty miles. The desirable plants at Conway are chiefly confined to the sea-shore, which we did not visit, and to the castle and walls of the ancient town, which we did perambulate. The following were noticed, viz. *Cheiranthus Cheiri* on the walls; also *Sinapis tenuifolia, Lepidium Smithii,* about the roadsides; *Smyrnium Olusatrum* in neglected corners about the castle; *Petroselinum sativum* and *Sedum dasyphyllum* on the walls; *Orobanche hederæ* on the ivy which covers much of the dilapidated remains of this ancient fortress of despotism. The morning was wet, and botanizing was rather uncomfortable, and hence we made but small progress in science. There was then a little steamer plying between Conway and Trefriew, which sailed at eight, but we preferred walking to waiting an hour for its departure, and at seven o'clock started again by the left-hand or Carnarvon-side road to Llanrwst, and, trudging along a very muddy and altogether unpleasant way, verified the old saying, "The richer the lands, the deeper the roads." This was, on the whole, the most cheerless walk we had: though there was but little rain, the whole of the road was miry from the effects of the previous night's rain, and we regretted the want of the firm footing which the roads in Carnarvon and Merionethshire always yielded under all circumstances. Our walk, bad as it proved, was not without some interest. We noticed *Linum usitatissimum* on the roadside, and a lobed not incised (divided)-leaved variety of *Malva moschata.* This form had the leaves of *M. sylvestris,* with the habit, inflorescence, and flowers of *M. moschata.* We never saw this variety in any other locality. Several of the specimens gathered or noticed varied in the form of the lower leaves, some being palmate, some cleft, and some only lobed, some of them approaching more to the typical form of *M. sylvestris*, and some to *M. moschata*. The little steamer reached Trefriew as soon as we did: thus we saved no time, but saved a little coin, and saw a few noticeable plants, and got besides a good appetite for our breakfast. At Trefriew, *Geranium striatum* grows in a farm-yard close to the corn-stacks. It was however apparently well established; and we recommend such of our readers as may be in that locality and have time, to look for it and record its condition in the 'Phytologist.' The vale of Conway, at least in its lower portion, does not possess any very marked peculiarities to distinguish it above or among many other fine vales in England. The Denbighshire side is low and fertile, and even the Carnarvon side possesses no very attractive features before the traveller reaches within a mile or two of Trefriew. Here the scenery on the right, or Carnarvon side, is very beautiful; and in some parts, as at Talybont, Trefriew, and Gwydir, it is romantic. We turned up the road to the left, and walked across the meadows to Llanrwst, which we reached about eleven o'clock, and enjoyed our rest and other refreshments, at one of the inns of this ancient town.

(*To be continued.*)

Notes on the Flora of Dumfries. By W. Lauder Lindsay, M.D.

The author's remarks applied to the district immediately around Dumfries, radiating to a varying distance of five to ten miles from the centre.

His object was not so much to mention the floral treasures of the county, as to call attention to the fact of the extreme luxuriance of the common vegetation, not having noticed in any other part of this country or in any other countries our common wild plants growing to such a height or in such profusion. This he is inclined to attribute in a great measure to the local climate, which again is undoubtedly modified by the physical configuration of the country. Geological structure is also probably an accessory cause, but only to a limited extent.

The geological basis of the district is the new red sandstone, which forms the bottom of a basin whose sides consist of rounded swelling hills of no great elevation, formed chiefly of uplifted Silurian slates. The latter are probably the oldest fossiliferous rocks in Scotland, and are characterized by many species of the Graptolitic family of zoophytes. Some of these contain carbonaceous impressions which appear to be those of fucoids, the earliest vegetable inhabitants of the primeval sea; many of the schists are highly impregnated with carbonaceous matter, which has probably been derived from the decay of the delicate cellular tissue of countless seaweeds which carpeted the floor of the ancient ocean. It is of extreme interest to note in this district the first dawn of animal and vegetable life (in the shape of zoophytes and algæ) in ancient Scotland. The geological character of these rocks has been fully examined and described by Professor Harkness, of Cork, who last summer was fortunate enough to discover, in Glenkiln burn, some new and very interesting algoid impressions in the graptolitic schists. The uplifting of the strata, and subsequent denudations and disturbances, have produced several characteristic appearances in the physical geography of the country. Some hills of Silurian range are peculiarly formed, so as to be distinguishable at a distance from those of trap, with which they are here and there intermingled; and are intersected by rugged ravines. Beyond this district the Silurian rocks constitute the lead hills, the Moffat range, and the general range of the Lammermuirs; at certain points they are penetrated by rich metalliferous veins, yielding lead, silver, copper, and other ores. The hills are mostly rounded, destitute of trees, bare and unpicturesque; some of them rise to a considerable height. In the higher points of this range are some of the rarer alpines, *e. g. Woodsia,* near Moffat. The sides of the Dumfries basin are also partially formed by outbursts of trap and other rocks, *e.g.* Criffel, a mountain guarding the embouchure of the Nith. To a geological eye these trap hills are distinguishable at a great distance from those formed of Silurian strata. The "new red" of this district is well known to contain valuable specimens of reptilian footmarks and ripple and rain marks on the shore sand of the ancient ocean. A considerable amount of iron occurs here and there in the soil, and there are several chalybeate springs, of which the "Brow Well" is a local celebrity. The soil for the most part is sandy and porous. Overlying the sandstone are considerable beds of diluvial boulder clay, gravel, and sand. There is moreover a large amount of moss land, only a small portion of which is under cultivation. The celebrated Lochar Moss, which constitutes the base of an extensive valley, rests, I believe, on sand. Canoes and other remnants of ancient shipping have been occasionally dug up, and there are other reasons for believing that the valley now crossed by this Moss once formed an estuary or embouchure of a river. The remains of various ancient animals have also repeatedly been found, in some instances converted into adipocere,—a substance so named from its resemblance to bog tallow or butter. By a little expenditure of engineering skill, this huge morass might be drained and converted into a fertile valley; but the proprietors—of whom there are not a few—have never been able to agree as to the details.

The bottom of the basin is intersected by the Nith, on the banks of which and in the centre of the basin lies the town of Dumfries. The country immediately round the town is well protected from winds, especially from the north and east.

The climate of Dumfries is very moist, and is usually felt enervating by strangers, and is found to predispose to various pulmonary and intestinal disorders.

This great moisture of the atmosphere is sufficiently indicated by the abundance and luxuriance of cryptogamic vegetation in the district, which is very rich in lichens, mosses, ferns, and fungi. The trees are frequently heavy with *Ramalinas, Evernias,* and other lichens, the walls are loaded with mosses, and the roadsides are profusely ornamented with ferns. I had no opportunity of studying the algæ of the district.

Of wood plants, the rare *Gagea lutea* grows in thousands in a wood on the roadside near the Grove, along with fine specimens of *Lathræa squamaria.* On underground portions of the stem, and on the roots of the common Broom, in the wood at the Craigs, the *Orobanche major* grows to a great height, and in considerable abundance—many specimens reaching upwards of two or two and half feet; in such circumstances it is a strong, tall, stately plant. In the same shady wood the graceful *Melica uniflora* is abundant.

On all the roadsides *Jasione montana* is in great profusion. *Viola odorata* grows on the side of a loaning leading from the Glencaple road to the New Quay. *Poterium Sanguisorba* grows in luxuriance and to a great size near Comlongan Castle and the Brow Well. *Polemonium cæruleum* I noticed at one or two points on the New Abbey road.

On that part of the banks of the Nith immediately below the town, called the Dock, *Galium boreale* and *Achillea Ptarmica* are abundant, springing in large tufts from the side of the dock immediately below the Old Bridge; also a *Campanula*, which resembled at a distance *C. latifolia* or *C. Trachelium*, or a form intermediate between them.

Of littoral plants, growing on the banks of the Nith below the New Quay, past which the tide of the Solway flows daily, *Aster Tripolium*, *Plantago maritima*, and *Honckenya peploides* are abundant in the salt marshes. *Ononis arvensis* and its spinous variety is common on the sides of the embankment which defends the east bank of the river. Nearer the sea *Erythræa pulchella* occurs: some look upon it as a mere dwarf variety of the common *E. Centaurium*: it is common in the downs below Caerlaverock Castle, as is also *Trifolium ornithopodioides*. On the Southwick cliffs, on the shore of the Solway, *Osmunda regalis*, *Crithmum maritimum*, and *Asplenium marinum* are found.

Of aquatics, *Nymphæa alba* covers acres in Loch Kindar, at the foot of the huge syenitic mass of Criffel, the highest hill in the district; when in flower the scene is one of great beauty; it also occurs in several other lochs, which are very abundant in the district. In the same loch *Lobelia Dortmanna* is found. The *Typhas* are found at Lochmaben. The water of the fosse surrounding the ruins of the fine old castle of Caerlaverock is covered with the showy little *Ranunculus aquatilis*. The majority of the plants are devoid of the entire floating leaves, which constitutes a not uncommon variety. Both species of *Bidens* are found at Lochmaben.

On the banks of the Glen water the Hart's-tongue Fern grows to one or two feet in length, and many of the fronds, which are extremely handsome, are bi- or trifurcate at the apex. Further up the stream, "on a grassy bank of fifty square yards, grow *Meum athamanticum* and *Betonica officinalis*." Dr. Gilchrist has not found them elsewhere in Dumfriesshire.

Of marsh plants, the three *Droseras* grow together in Dalscone Moss, two miles to the east of the town. *D. rotundifolia* is plentiful in the Lochar Moss, where *Menziesia polifolia* and *Ranun-*

culus Lingua occur. *Samolus Valerandi* and *Menyanthes trifoliata* grow in the marsh surrounding Caerlaverock Castle. *Lythrum Salicaria* I have seen abundant on the Thornhill road. *Myrica Gale* occur in the damp, spongy marshes of Criffel.

Of sub-alpine and hill plants, four species of *Lycopodium—L. Selago, selaginoides, clavatum,* and *alpinum,* grow on the Dalscairth portion of the Criffel chain.

Of species which usually grow on or about old ruins, *Anchusa sempervirens,* common Wallflower, and three of the *Aspleniums* are abundant on the remains of New Abbey, one of the most picturesque ruins in the district, the beauty of which is greatly heightened by the ornamental covering of the ivy green. *Chelidonium majus* has also been gathered here.

Sempervivum tectorum was noticed on the roofs of a few cottages on the Annan road; *Genista anglica* occurs on some of the muirlands. *Ligustrum vulgare* forms a common material for hedges on many of the roadsides. There are few interesting plants to be found in the fields. *Lithospermum arvense* and *Chrysanthemum segetum* are somewhat rare.

Conium appears to grow in considerable abundance in waste ground about Lochmaben, and appears more than once to have been the source of dangerous accidents to children, who ate its leaves. A case of this kind happened last summer in the practice of Mr. Thomas Skinner, the principal surgeon of Lochmaben, where several children, who had inadvertently chewed a quantity of the leaves, were seized with all the symptoms of narcotic poisoning. The symptoms, as narrated by that gentleman, were very interesting. The means employed proved successful in restoring all of these attacked, though in some, deep narcotism had been produced.

Some of the estates in the district, or immediately beyond it, possess very handsome and old trees, as the yews at Lincluden Abbey, and the forest trees of Drumlanrig, a seat of the Duke of Buccleuch, the grounds of which are laid out with extreme taste.

Harefield Plants.

We are indebted to a correspondent for the following notices of plants growing wild about Harefield in May, 1855.

Between West Drayton station and Uxbridge, scarcely a mile from the former, and on the left or Windsor side of the road, *Adoxa Moschatellina* was observed growing luxuriantly and profusely. About half a mile further on towards Uxbridge, *Smyrnium Olusatrum* was seen under a hedge in two places, but the plants were evidently much weakened by the process of scouring the ditch and weeding the hedge. *Conium maculatum* was seen, but sparingly. On the waysides from Drayton to Harefield, *Sison Amomum* appeared almost everywhere. The Cowslip and the Meadow Pink (*Cardamine pratensis*) vied with each other on all the meadows between Uxbridge and Harefield, and there are not a few in that tract. *Senecio sylvaticus* grew in some quantity near Uxbridge, on the Harefield side, but it soon gave way to plants which usually grow on a better soil than that on which it mostly flourishes. The first chalk plant, *Viola hirta*, occurred about a mile before reaching Harefield.

The most interesting plant at Harefield is *Dentaria bulbifera*, detected here by Blackstone about 120 years ago, and stated by him to grow in such plenty that whole acres are covered by it. This is still the case. The plant is most abundant in Old Park Wood, and is surrounded with early summer or spring plants which, for luxuriance of growth, are rarely surpassed. At this period the plants in flower, or coming into flower, were the Primrose, the Bugle (*Ajuga reptans*), barely in flower, the Wood Hyacinth (*Scilla nutans*) only expanding; fine large plants; Wood Spurge (Wood Laurel, as they call it here), large and very handsome. The Dogs' Mercury covered most of the shady parts; and rising above these common things, appeared the Toothwort, elevating its graceful stem about a foot above the former; its beautiful lilac flowers rendered it very conspicuous. The Wood Anemone was quite superb; several patches were eminently ornamental. *Dentaria bulbifera* is not confined to Old Park Wood, in which it indeed abounds, so much so, that cartloads would scarcely be missed from this locality. It is also plentiful in a wood called Garrett Wood, on the Pinner side of Harefield. Old Park Wood is on the west side of the village lying between Harefield and the river Colne. Garrett Wood is about half a mile from the village on the opposite side, towards Moor Park. In this latter wood a few plants of *Orchis mascula* were noticed, and abundance of Wild Cherry-trees: this tree is common in these parts of Middlesex and in the adjoining county. A part of Garrett Wood is in Hertfordshire, and a part in Middlesex. The Wild Cherry abounds in Hertfordshire, and it is very probable that the Toothwort is not confined to the woods about Harefield. It may hereafter be detected in woods in Buckinghamshire, and it is not unlikely to extend further into Hertfordshire. The fear of poachers has shut up every wood in this neighbourhood. Every place where a pheasant breeds or feeds is carefully *tabooed;* notices are nailed up, and the gentle fraternity, who would no more disturb a pheasant than they would wantonly destroy a rare plant, are treated as wilful trespassers, and threatened with all the pains and penalties in such cases made and provided. The London botanist who visits Harefield in search of simples, had need of "silver in his pocket, or have silk on his tongue;" if he be unprovided with one or both of these requisites, he should content himself with such botanizing as he can get on Hampstead Heath, Barnes Common, Battersea fields, or such open places.

The subjoined list of plants is extracted from Blackstone's '*Fasciculus Plantarum circa* HAREFIELD *sponte nascentium,*' with a few from the new edition of the 'Botanists' Guide.'

Artemisia Absinthium, *Moor Hall.* Acorus Calamus, ponds near *Harefield Church.* Asplenium Ruta-muraria, *Pinner church.* Asplenium Adiantum-nigrum, lane between *Harefield* and *Rickmansworth.* Allium ursinum, *Gulchwell* (we noticed this plant near the Harrow station). Aquilegia vulgaris, *Harefield* woods, rare. Chenopodium olidum, *Harefield,* but not common. Listera ovata, *Whiteheath* Wood and Scarlet Spring, *Harefield.* Polygonum Bistorta, near *Uxbridge.* Verbascum Blattaria, near *Harefield* Mill. Cardamine amara, river-side near *Harefield.* Carlina vulgaris, *old chalkpit, Harefield.* Prunus Cerasus, woods about Harefield, plentiful: Blackstone's account is "*in sylvis sed rarius;*" it has increased since his time. Vinca major, near *Harefield church.* Vinca minor, *Little Grove Wood, near Breakspears.* Pulicaria vulgaris, *watery places.* Cuscuta europæa, Dodder, or Hell-weed: "*satorum pestis est,*" says Blackstone. Dentaria bulbifera, *Old Park Wood,* abundantly: we are able to verify this, and further to inform our botanical friends that it occurs plentifully in Garret Wood, a mile from the other known station. Lathræa Squamaria, shady lane near *Harefield.* Dipsacus pilosus, about *More Hall.* Sambucus Ebulus, meadow near *Breakspears,* and on *Uxbridge Moor,* plentifully. Inula Helenium, in a close near *Harefield Common,* and in a meadow near *Breakspears, called Gantlets,* but not plentifully. Equisetum sylvaticum, "*in sylvis humidis non raro occurrit.*" Fritillaria Meleagris, *Maud-fields,* near *Ruislip Common.* Genista tinctoria, "*in pascuis non valde frequens.*" Gentiana Amarella, *old chalkpit, Harefield.* Geranium lucidum, lane leading to *Harefield mill.* Paris quadrifolia, *Old Park hanging-wood,* and elsewhere, near *Harefield,* plentifully. Smyrnium Olusatrum, about *Cowley, near Uxbridge* (we saw it here last May). Hypericum perforatum "*in dumetis frequens.*" Hypericum Androsæmum, in a thicket near *Harefield church,* also near *Bacher Heath.* Lactuca virosa and L. Scariola, "*ad sepes et agrorum margines.*" Convallaria majalis, near *Cashiobury,* plentifully. Epilobium angustifolium, between *Beaconsfield and Uxbridge.* Marrubium vulgare, *Uxbridge Moor,* abundantly. Mentha rotundifolia, *Harefield churchyard.* Nepeta Cataria, *More Hall and Harefield Mill.* Narcissus Pseudo-narcissus, meadow, *Breakspears.* Narcissus biflorus, in several places near *Harefield.* Sisymbrium Sophia, "*in fimetis et locis ruderatis haud infrequens.*" Anagallis tenella, *Harefield Moor.* Nymphæa alba, *Windsor Lake on Uxbridge Moor.* Hydrocharis Morsus-ranæ, "*in aquis leniter fluentibus.*" Neottia Nidus-avis, *Whiteheath Wood, Harefield Common,* rare. Orchis militaris, *Chalkpit Paper-mill, Harefield.* Orchis ustulata, O. fusca, *same locality.* Ophrys muscifera, *Harefield chalkpit.* O. apifera, *same locality.* About fifteen or twenty Orchidaceous plants are in Blackstone's catalogue, and most of them were collected in the chalkpit above mentioned. We wish some of our young vigorous correspondents would visit this locality, and send us a list of the plants that occur there *now.* We should be doubly indebted to them if they would send us fresh specimens of what they see. Orobanche major, Broom, *Iver Heath.* Parnassia vulgaris, meadows near *Harefield Mill.* Pedicularis palustris, *Harefield Moor.* Bupleurum rotundifolium, near *Harefield Mill.* Pyrus communis, "*in sepibus frequens.*" Adoxa Moschatellina, *Old Park Wood, etc.* (we saw it copiously and luxuriant near Drayton station). Ranunculus Lingua, *Bogs, Iver Heath* (Iver Heath is now enclosed; query, does the plant grow in the ditches there?). Jasione montana, in a lane leading from *Denham to Iver Heath.* Ribes nigrum, *meadow near Warren Pond,* *Breakspears.* Rubus idæus, *Harefield Moor.* Saponaria officinalis, hedge near *Uxbridge churchyard.* Petroselinum segetum, roadside near *Eaton* (Eton?), sparingly. Atropa Belladonna, gravel-pit near *Old Park, Moor Park,* abundantly. Pyrus torminalis, "*in sylvis et sepibus.*" Specularia hybrida, cornfield near the *chalkpit, Harefield.* Sedum Telephium, "*in umbrosis et interdum inter segetes.*" Euphorbia platyphyllos, cornfield between *Harefield Common* and *Battleswell.* Campanula Trachelium, *Old Park Wood.* C. glomerata, chalkpit, *Gerard's Cross* (this station, or locality, is many miles from Harefield). Menyanthes trifoliata, *Harefield Moor.* Verbascum nigrum, "*ad margines agrorum sed non ita frequens.*" Dianthus Armeria, between *Harefield* and *Chalfont,* very sparingly. Viscum album, "*plerisque arboribus innascitur.*"

The above-mentioned plants, with their localities, are entered here rather with a view to direct the attention of botanists to Harefield, than to exhaust the subject. The following, from the 'Botanist's Guide,' are given with the same object. Helleborus viridis, near *Harefield.* Lathyrus Nissolia, meadow near *Harefield church.* Cicuta virosa, near *Denham.*

In walking from West Drayton station to Uxbridge, at Cowley, on an ancient brick wall, a *Sedum,* probably *album,* was noticed in considerable abundance. The Hop was observed pretty frequently in the hedges that skirt the same road. It may further be stated, that *Clematis Vitalba* was occasionally seen, distant several miles from the outcrop of the chalk. The soil about Harefield appears to be gravelly or sandy or marly, and of more or less depth above the chalk, which comes to the surface in several spots, and especially in Garret Wood, which is partly in Hertfordshire and partly in Middlesex. The elevation of the highest ground in the parish does not probably exceed eighty yards above the level of the Colne. The surface is hilly, but the hills are of little elevation. Much of the land is grazed: cultivation only commences about the village, where the soil is poorer, and more gravelly than on the southern or Uxbridge side of the parish. We beg leave to reiterate our request for more information about the botany of Harefield. This place, interesting as it is from its association with one of our earlier botanists, who was the contemporary and correspondent of Sir Hans Sloane, the Mæcenas of that period, appears to have fallen into oblivion. Its name, like Settle, exists indeed in botanical records of the last century, and even in the present, when it is necessary to reproduce the discoveries of past ages; but we are not aware that this once famous botanical station has been the *locale* of recent explorations. The London botanist can visit Harefield either *viâ* Uxbridge, to which town the railway is now completed, or by the London and North-western, leaving the rail at Pinner station. The distance from either of these stations to Harefield is between five and six miles; Uxbridge is nearer to Harefield than Pinner is, and neither of the roads is interesting. The Pinner way would be preferable, if all the woods were not closed against the brethren of the vasculum and trowel. The jealousy of owners, and the zeal of gamekeepers, render it somewhat hazardous to enter these forbidden precincts.

Reviews.

The Handbook of British Ferns, comprising Scientific and Popular Descriptions, with Engravings of all the indigenous Species and Varieties, with Instructions for their Cultivation. By THOMAS MOORE, F.L.S., Curator of the Botanic Garden, Chelsea, and author of the 'Popular History of British Ferns,' etc. etc. London.

This useful and deservedly popular treatise on the British Ferns is a very portable volume, small enough to be carried in a lady's reticule, yet it contains a lucid and comprehensive digest of all that is known about these popular objects. We cannot state exactly the number of illustrations; but as all the British species are figured, and nearly all the varieties, we estimate them at about a hundred, exclusive of those employed to illustrate the structure of these plants. The work commences with an introduction, an account of the structure, the distribution, culture, and classification of Ferns, and from this portion the following is an extract:—

> The cultivation of ferns is a growing fancy, and one which may well be fostered and encouraged. For whoever admires ferns must be a lover of nature. Their simple ungaudy elegance—superlative though it be—has nothing in it to attract those whose eyes can feast only on the pageantry of floriculture. Flowers may be admired and esteemed for some quality

altogether independent of their natural beauty; but nature and ferns are, as it were, inseparable.

To those who have the means of studying ferns from their infancy, as we may say, the following is warmly recommended:—

Half fill some shallow wide-mouthed pots with broken crocks, and on this put a layer of about two inches of turfy peat soil and mellow loam, mixed with soft sandstone broken in small lumps of the size of peas; this compost should not be much consolidated. Next, shake or brush very gently over a sheet of white paper, a frond of the species to be propagated; the fine brown dust thus liberated consists of the spores in greater or less quantity, intermixed more or less with the spore-cases. This dust is to be regularly and thinly scattered over the rough surface of the soil, which is immediately to be covered with a bell-glass large enough to fit down close within the pot. The pots are at once to be set in feeders, and these are to be filled up with water. They may either be placed under a hand-glass in a cold frame, or in a greenhouse, or stove, as may be most proper. The first indications of germination will consist in the appearance of little green scales. . . . When two or three fronds are developed, the glasses should be tilted on one side for a short time every day, and ultimately entirely removed; the pots being still retained under a hand-glass. After a week or two, they may be taken up, carefully separated, and potted singly in small pots. The young plants should still be kept under a hand-glass until established, and then gradually inured to the degree of exposure proper for the mature plants.—*Handbook*, p. 15.

To cultivate ferns successfully, the following directions in reference to soil, potting, watering, etc., are given:—

Soil.—Nearly all ferns like the soil more or less sandy. A mixture suitable for all the purposes of pot culture may be thus compounded:—Take of fibry yellow loam, light spongy peat, and well decayed pure leaf-mould, equal parts, and mix them well with sand. For all the stronger-growing species use the soil in the rough state, to which it will be reduced merely by chopping it fine with the spade, and add to it an eighth part of clean but coarse sharp sand. For all the smaller and more delicate species rub the soil through a sieve with half-inch square meshes, and be careful to rub through as much of the fibry portion as possible; add to it a sixth part of clean silver sand. In both cases mix up with this compost a fourth part of crushed sandstone, broken to the size of walnuts and smaller for the vigorous growers, and of the size of hazel-nuts and smaller for the more delicate sorts.—P. 25.

Potting.—Pot ferns must always have thorough drainage. One-fourth of the depth of the pot should be occupied with drainage material, which may consist of potsherds broken to the size of nuts and walnuts, rejecting the finer portions. On this a thin layer of Sphagnum moss should be spread, to prevent the soil washing or settling down among the drainage. Then, in potting, lay a little soil on the moss, spread out the roots as much as possible, and fill in the soil, gradually working it with the fingers well among the roots. When the pot is filled, consolidate it by a few smart taps on the potting bench and by pressing firmly with the fingers. . . . The soil should be in a half-dry state when used, never wet.

Watering.—All ferns love moisture, therefore while they are growing they should be well supplied. . . . Through the growing season, or from May to September, the plants will be benefited by a daily syringing over the fronds, repeated in the evening of all hot days. . . . Soft, or at least aerated water, should always be used, and the water used for syringing should be scrupulously clean, or the fronds will be disfigured by it.

Situation.—Pot ferns are best kept in a cool shady frame or pit. In such a place they may stand during the winter, with just enough water to prevent dryness of the soil and no more. . . . In summer no sunshine should smile upon the then growing plants, which must be shaded with scrupulous exactness, if it is desired to preserve that delicacy of tint and texture which in ferns are so much prized. . . .

Glazed cases.—These inventions of Mr. Ward are invaluable aids in fern culture; and besides this, they are, when well filled with living plants, very instructive and suggestive ornaments in the comfortable parlours of the affluent.

Want of room prevents further quotation. We think it due to our readers to state why we have deviated from the common practice of only once noticing a work in the same periodical. Every work which bears on our chief object, British Botany, demands from us a portion of our pages and the hearty tribute of our goodwill. We have devoted to Mr. Moore's treatise as much of our space as we can afford; we have consulted the benefit of our readers in recommending a cheap and instructive book, which is truly what it professes to be, 'A Handbook of British Ferns;' and in thus acting, we only do justice to the author and satisfy the demands of courtesy and impartiality.

Experiments on the Dyeing Properties of Lichens. By W. LAUDER LINDSAY, M.D., Assistant Physician, Crichton Royal Institution, Dumfries.

The subject of this *brochure* of forty pages, we believe, is new to the pages of the 'Phytologist.' It may be of some commercial importance, and it is of great interest both to art and science. Most botanists are aware that Lichens possess colorific properties, some more, some less; and also that several of them are already employed in the preparation of some of our most important and permanent dyes. With this brief preamble, we introduce Dr. Lindsay to our readers, with an earnest wish that this may not be both his first and last appearance as a contributor to this periodical.* The author states that having "on former occasions so fully occupied the time of the Society [the present is a *résumé* of a series of communications made to the Botanical Society of Edinburgh in the years 1852, 1853, and 1854. We wish the Society would now and then send us a copy of their published proceedings, and we would do our best to give publicity to their discoveries,] with detailed views on this subject," he confines himself "to a few facts explanatory of the tables." These are—

I. Certain genera and species of Lichens abundant in Scotland might at a very moderate expense be collected, and serve as substitutes for the foreign Lichens used in the manufacture of orchil, cudbear, and litmus.

II. This subject is deserving of the manufacturer's notice on the one hand, and the chemist's on the other.

a. On account of scientific interest, the subject being new and promising.

b. With the view of developing the economic resources of our own country.

c. The result promises to be remunerative, as *Roccellas* have reached the high price of £1000 per ton in the London market.

V. The Lichens richest in colorific principles are crustaceous and foliaceous species, of a pale or whitish colour. These grow on rocks or stones, in mountainous countries and on sea-coasts.

XII. The chief tint educible from Lichens which can be of any permanent utility in the arts, is *red;* brown is also useful in a minor degree.

The solvents employed for the extraction of the colouring matters of these plants, the Doctor states, are chloride of lime, alcohol, ammoniac water, and water alone; and the time employed in these solutions varied from a few hours to a few months. The following species, viz. *Roccella, Lecanora, Umbilicaria, Gyrophora, Urceolaria, Parmelia, Evernia, Borrera, Ramalina, Lecidea, Isidium, Sphærophoron,* yield fine red colours, and *Parmelia, Sticta, Cetraria, Nephroma, Solorina, Scyphophorus, Stereocaulon, Borrera, Lecidea, Peltidea, Collema* furnish good brown colours. The Doctor further states that—

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* Our present number contains a paper on the Flora of Dumfries and its vicinity. We believe the author of this interesting account is also the author of these experiments and results. We should like to meet with Dr. Lindsay in either character, either as a botanist or as a chemist.

> XIX. Of 540 specimens examined,
>
> 22 gave rich purple or red colours to ammonia alone (*i. e.* simple maceration).
>
> 8 gave rich brown colours to ammonia alone.
>
> 81 alcoholic solutions gave rich purples or red on the addition of ammonia.
>
> 127 alcoholic solutions gave well-marked orange on the addition of ammonia.
>
> 42 alcoholic solutions gave well-marked greenish-yellow on the addition of ammonia.
>
> 79 alcoholic solutions struck a deep blood-red with solution of chloride of lime.
>
> XX. The whole subject of the intimate chemistry of the Lichen colouring matters is in a very unsatisfactory condition, demanding reinvestigation; and I therefore repeat, that the branch of the Natural History of the Lichens, to which in this and previous papers I have endeavoured to draw scientific attention, will form a subject of research to the botanist and chemist, and possibly a remunerative one to the manufacturer.

At the end of this introductory matter, for the six pages of text are only a statement of facts and results deduced from the tables which constitute the remainder of the tract, it is said, "I subjoin some simple methods of detecting the various Lichens." We have not seen these methods. If we had, we should have printed them *pro bono publico.* We have looked for them, but with the exception of chemical properties, characters of no use to mere botanists, we have not been able to detect in the work sent to us any means by which one Lichen is to be distinguished from another. If Dr. Lindsay will send *them* to us, we will give them publicity. We reiterate our thanks to the author of this pamphlet, and shall be very well pleased to have the honour of enrolling his name among the other honoured and stated contributors to our pages.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Will any of our more learned correspondents help a *reader* of the 'Phytologist' to the derivation or etymology of the term *Berberis*, vulgarly *Barberry?*

A. J. wishes to receive from some botanical friend in Durham, where the Mustard of commerce is cultivated, a specimen, with fruit, of the true Mustard-plant.

Linaria Cymbalaria, early notice of (see pp. 5, 47, etc.).—In one of a series of papers in an early volume of the Phil. Trans. An. 1713, entitled "Rare Plants in Gardens in the Neighbourhood of London," there is the following entry:—"Cymbalaria, C. B.; C. italica hederacea, Park. 682. It is said to be found wild upon thatched houses in the North, and in Lancashire plentifully." If at this date it had been only half as common about London as it is now, surely the writer of these notices (Plukenet) would not have quoted a hearsay report of its growing wild in the North, etc.

Mr. Irvine, 28, Upper Manor-street, Chelsea, will be much obliged to Mr. Gibson, of Saffron Walden, for a fresh specimen of what the latter considers to be *Galium Vaillantii.*

In reply to T. G. (page 48), the earliest account of *Dentaria bulbifera*, as a native of Britain, seems to belong to Parkinson, who says (Park., Theatrum Botanicum, p. 621), "This hath been found in our land at Mayfield, in Sussex, in a wood called Highreede, and in another wood there also called Foxholes, both of them belonging to one Mr. Stephen Perkhurst at the writing hereof." Then Johnson, in the second part of his 'Mercurius Botanicus;' but he gives no particular locality, merely saying, "in sylvis." So far as the writer of this reply can discover, Ray takes not the least notice of it. Then comes Blackstone, who, in his 'Fasciculus Plantarum circa Harefield' (1737), says, "in the Old Park Wood abundantly," and refers to it again, nine years after, in his 'Specimen Botanicum' (1746), and adds, "Parkinson says it has been found in the woods about Mayfield, in Sussex, but as I do not find it mentioned by any later writer, doubt he mistook the plant." But was not this an error upon the part of Blackstone? for as to its Sussex and Kent nativity, subsequent investigation has completely established its claim to be enumerated amongst the indigenous plants of those counties. It was growing not many years ago pretty plentifully in the small wood behind the High Rocks at Tunbridge Wells, and it is quite likely to be still in existence at the two places near Mayfield mentioned in Parkinson's 'Herbal.' D.

Dentaria bulbifera (page 48).—In answer to the inquiry of T. G. (Waltham Abbey), I find it stated in the 2nd vol., p. 304, of Pulteney's 'Sketches of the Progress of Botany in England,' that in the year 1752 Mr. Watson laid before the Royal Society two rare English plants, the *Lathræa Squamaria* and the *Dentaria bulbifera*, the latter unnoticed both by Mr. Ray and Dillenius. These were discovered by Mr. Blackstone, near Harefield. A. B.

"There is now to be seen, in the Museum of Economic Geology, in Jermyn-street (the entrance is in Jermyn-street), a part of a trunk of a

Willow-tree, lately felled in Battersea-fields, in the centre of which was found an aerolite, or meteoric stone, of a very large size, which seems to have fallen on the tree many years ago, and to have imbedded itself in its substance. It is a prodigious curiosity, and well worth examination."—*Gardeners' Chronicle, June* 9.

Has the Misseltoe been recently noticed on the Oak? J. A., of Guildford, once heard of its being seen growing on an Oak near Haslemere, Surrey. Can any reader of the 'Phytologist' verify this?

Will any of our lady readers have the kindness to try the following plan of domestic gardening, and give us a statement of the results?—

FLOWER-POTS FOR ROOMS.—Fill a pot with coarse moss of any kind, in the same manner as it would be filled with earth, and place a cutting or a seed in this moss; it will succeed admirably, especially with plants destined to ornament a drawing-room. In such a situation, plants grown in moss will thrive better than in garden mould, and possess the very great advantage of not causing dirt by the earth washing out of them when watered.

In Pepys's Diary, under date August 14th, 1662, we read:—"With Mr. Commissioner Pett, at the Mitre, in Fenchurch-street, to a venison pasty. Found him a very worthy man: most of the discourse was concerning the Forest of Dean and the timber there . . . with the age of many trees there left, at a great fall in Edward the Third's time, by the name of *Forbid Trees*, which at this day are called *Vorbid Trees*."—Is anything known about these *Forbid Trees?* what they were, and why left to lie there from 1370 to 1662? J. KENNEDY (*Winchester*).

Natural Barometers.—Many plants indicate a moist state of the atmosphere by closing their flowers. The Poor man's Weather-glass, *Anagallis arvensis*, is a well-known hygrometric plant; also *Ornithogalum umbellatum*. The Daisy and Chickweeds are familiar examples of this property.

Clematis Vitalba is rare in Cornwall, but occurs in Devon, and about Bath. Is it a Dorsetshire plant?

Communications have been received from

Rev. R. H. Webb; A. B.; Rev. T. A. Cox; Rev. E. Lloyd; R. W. R. (Humberstone); J. P.; W. Marshall (Ely); Rev. A. Bloxam; C. C.; J. G. Baker; D.; C. A. Lanyon; Joseph Woods; J. Gifford; Miss M. Hutton (Bath); Alfred Evans; George Dixon; and John Windsor.

BOOKS RECEIVED FOR REVIEW.

Hooker's Museum of Economic Botany at Kew.
Drummond's Observations on Natural Systems of Botany. Reissue, price 1s.
Lindley and Moore's British Ferns by Nature Printing, part 3.
Transactions of the Malvern Naturalists' Club, part 1.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

On the Botany of the Great Orme's Head, Carnarvonshire. By JOSEPH WOODS, F.L.S.

Mr. Editor,—You said you liked short notes for the 'Phytologist,' and on this ground perhaps you may think the account of a few hours' botany on the Great Orme's Head not entirely without interest.

I went by car from Conway to Llandudno, on the evening of the 8th of June. Next morning was cold and wet. I endeavoured to get a guide or particular direction to the habitat of the *Cotoneaster;* but failing in this, I set off alone as soon as the weather promised a little improvement, ascending the little hollow at the base of which the present village is placed. My first divergence was to the right, and I observed upon the rocks there *Geranium sanguineum, Silene nutans,* and *Helianthemum canum.* Whatever plants may grow in this position however, the rocks are so high and so solid, and the intervening spaces so steep, that it is almost impossible to investigate its products; and seeing an eminence on the opposite side of the hollow and of the road that leads up it, where the ground was much more accessible, I directed my steps towards it. *Artemisia Absinthium* is abundant about Llandudno, and in my way to the point at which I aimed I saw a good deal of it; and soon after, met with *Potentilla verna.* On reaching the spot which I had made my object, I presently fell in with the *Cotoneaster.* There might be in that neighbourhood perhaps twenty bushes of it; but the flowers were over, rather perhaps from having been blighted with the cold winds, than from having performed their allotted office, since very little of the fruit was set. *Helianthemum canum* here covered the ground to a great extent. The next plant was *Scilla verna,* flowering very abundantly. I afterwards met with much finer specimens near Holyhead, but much less attainable, from the bulbs lying among the roots of Furze, while on the Orme's Head they are altogether on the open turf. The plant is also said to abound on the hill of Howth. *Scilla verna* seems to be essentially a western plant; and it is curious that it should cross the Irish Channel, and then stop, without apparent cause, a little to the east of Conway. *Antennaria dioica* next occurred, but afterwards I added nothing in my walk up to the summit of the hill and along its south-western shore, unless I mention a *Fumaria,* which was, I think, *F. capreolata;* but it was in a young state, and possibly might be *F. agraria.*

From this shore I walked to some sand-hills on the isthmus, where I noticed *Arenaria peploides* and *Eryngium maritimum. Rosa spinosissima* and *Cynoglossum officinale* were there in full flower, though only just in bud upon the hills.

The next day was beautiful; and after meeting Mr. Evan Hughes, who the day before had been unable to accompany me, we strolled together, by a more westerly track, to the point I had visited the day before. On our way I noticed *Hypochœris maculata,* but of course not in flower, and on the lowest range of rocks which form the eminence Mr. Hughes showed me several young plants of *Chrysocoma Linosyris.* We scrambled up to my former position, where it appeared that Mr. Hughes had never been before, and afterwards continued our walk to the north-eastern shore of the peninsula, to see *Asplenium marinum,* a plant, I think, not often found on limestone. I noticed, on the way, *Erodium maritimum. Brassica oleracea* was in considerable abundance, and is said to be found in still greater quantity on the Little Orme's Head. A *Statice,* probably either *S. Dodartii* or *S. occidentalis,* grows on the rocks, and the lower precipices were purple with the *Armeria maritima.*

In the evening I sauntered along the northern shore, and found some large bunches of *Crambe maritima.* It was at a considerable distance from any house, and I observed none of the plants in the gardens of the village, yet I would not venture to pronounce it wild. A further walk towards the Little Orme's Head might determine the question.

The plants I have enumerated, the product of two not very long walks, will perhaps be sufficient to show that Llandudno is an interesting place to a botanist. There are several more points on the Great Orme's Head which might probably furnish other rarities, and the different seasons of the year would produce different flowers. Then the sand-hills are not without interest. The Little Orme's Head, between two and three miles from Llandudno, would be well worth a visit, and the woods of Lord Mostyn. Besides their botanical interest, the two Orme's Heads offer some fine bold rock scenery; and the views over the Welsh mountains are highly beautiful, and continually varying. You are within reach of Conway and its romantic castle, and to this place there are omnibuses twice a day, and a railroad is in preparation. They are making roads and building lodging-houses at Llandudno. There are three hotels, and the smallest of these, the Mostyn Arms, is a very good one, so that on the whole Llandudno may be pronounced one of the most tempting watering places on our coasts; and it is now easily accessible, and will soon become more so.

I doubt, with all these merits, whether this part of the coast will be favourable to the collection of marine plants or animals. Having two shores, of course any strong wind would probably throw up a considerable number of both, but both sides are sandy and but slightly inclined, so that it is a long distance to the low-water mark. On the south-west side there is a small distance of pebbly shore, but there are no rocks *in situ* to amuse or reward the collector of such objects. It is true, that immediately under the cliffs there are scattered rocks and stones, but these seem to be merely fragments which have fallen from above, and present none of those pools which are objects of so much interest and beauty on some of our limestone shores.—Yours, etc.

J. WOODS.

Wild British Plants in the Neighbourhood of Warslow, Staffordshire. Collected and communicated by the REV. A. BLOXAM.

Sojourning a few days, in the autumn of 1853, at Warslow Hall, in Staffordshire, I took the opportunity of noting down the rarer species of plants that came across my path in the few walks that I was enabled to take. Warslow is situated in the north-east portion of Staffordshire, and not far from the borders of Derbyshire. It is in the immediate vicinity of Ecton Tor, a bold lofty hill, celebrated for the beautiful specimens of copper ore extracted from its interior. This is a most interesting spot to a botanist, as well as a mineralogist, and would doubtless afford, in the spring and summer months, numerous plants which escaped my notice during the short visit of a few hours that I was enabled to make amongst its treasures. Scarcely a twentieth part of its surface could be explored by me through want of time.

The following list will afford some indications of its richness. Plants about Ecton Tor:—*Vicia sylvatica, Saxifraga hypnoides,* *Campanula latifolia* and *Trachelium, Helianthemum vulgare, Arabis hirsuta, Origanum vulgare, Sedum Telephium, Lactuca muralis, Gentiana Amarella, Geranium lucidum, Mentha sativa, Petroselinum segetum, Poterium Sanguisorba, Geum rivale, Symphytum officinale, Asperula odorata, Teucrium Scorodonia, Stachys palustris,* remains of several of the *Orchideæ,* but too far decayed to ascertain the species correctly, *Viola hirta, Sanicula europæa, Pimpinella magna* and *Saxifraga, Geranium pratense, Malva moschata, Carduus nutans, Petasites vulgaris, Gnaphalium sylvaticum, Digitalis purpurea, Hieracium sylvaticum* and *boreale, Jasione montana, Orobus tuberosus, Picris hieracioides, Melica uniflora, Potamogeton crispus.* Amongst the Ferns were *Cistopteris fragilis,* in great luxuriance on the moist rocks; also *Scolopendrium vulgare, Asplenium Ruta-muraria* and *Trichomanes. Ceterach officinarum* was, I heard, to be met with at Watton, but my walk did not extend so far. Amongst the *Roses* and *Rubi* in the neighbourhood of Warslow, I jotted down the following:—*Rosa canina, tomentosa,* and *arvensis; Rubus Kœhleri, Idæus, cæsius, dumetorum, fusco-ater, corylifolius, carpinifolius, leucostachys,* and *Sprengelii,* the latter in Gradbatch Wood. I had a search for the *Hymenophyllum Wilsoni,* said to have been found at Gradbatch bridge, but as it was pouring with rain at the time I was there, I devoted but a short time, and that in vain, to the search for it. *Lastrea Oreopteris* was on the sides of the road near the Ramshaw Rocks. The more common Ferns were *Lastrea Filix-mas, Athyrium Filix-fœmina, Blechnum boreale,* and *Pteris aquilina.* On the moors, though late in the season, I noticed *Narthecium ossifragum* at Goldsich, also *Eriophorum angustifolium, Juncus squarrosus, Viola palustris, Andromeda polifolia, Vaccinium Myrtillus* and *Oxycoccus, Salix fusca, Empetrum nigrum, Drosera rotundifolia, Calluna vulgaris,* and *Erica cinerea.* In a pond near Longnor was *Menyanthes trifoliata,* and between Warslow and Sheen *Viola lutea* was growing on the roadside.

On Viola hirta *and* odorata. *By* JOHN G. BAKER, of Thirsk.

The most complete description of these plants and their intermediaries which I have seen, is that of Grenier and Godron. As it may not be accessible to many of the readers of the 'Phytologist,' I will take the liberty of quoting it entire, and at the same time endeavour to translate it as well as I can, preserving the original italics, etc.

" V. HIRTA, *L. sp.* 1324: *DC. fl. fr.* 4, *p.* 802: *Dub. bot.* 63: *Lois. gall.* 1, *p.* 130: *Mut. fl. fr.* 1, *p.* 118: *Rchb. ic.* 3, 4, 5, 6, *f.* 4493: *Moris. sect.* 5, *t.* 35, *no.* 4.—Flowers *inodorous.* Sepals oval, rounded at the summit. Petals *all emarginate,* the two lateral closely ciliated. Capsule downy. Leaves oval or oval-oblong, deeply heart-shaped; stipules lanceolate, acute, feebly ciliated, the glabrous cilia shorter than half the breadth of the stipule. Rhizome *without stolons,* thick, knotty, scaly, branched.—Plant more or less thickly covered with spreading hairs (velue-hérissée), leaves large or small, shorter or longer than the flowers, of which the earlier are commonly large and sterile, and the latter apetalous and fertile.

HAB. Woods and hillocks, very common.

V. HIRTO-ALBA, *Gren. and Godr.* *V. adulterina, Godr. thèse de l'hybrid. p.* 18.—Flowers *white,* with a *violet* spur, *inodorous.* Sepals oval-oblong, rounded at the summit. Inferior petal slightly emarginate, the others entire or feebly emarginate: the two lateral *closely ciliated.* Capsule downy. Radical leaves deeply heart-shaped at the base; those of the stem smaller, *subreniform,* not acuminate; stipules lanceolate-acuminate, glandular-ciliated. *One or many lateral stems,* procumbent, not rooting, bearing flowers in the first year of their development.—Plant more or less thickly covered with spreading hairs. This hybrid between *V. hirta, L.,* and *V. alba, Bess.,* grows in society with them. It has the appearance and the lateral stems of *V. alba,* and approaches *V. hirta* by its inodorous flowers and closely ciliated lateral petals.

HAB. Nancy, Besançon, in the woods on the Jurassic limestone.

V. ALBA, *Besser, prim. Gallic.* 1, *p.* 171: *Koch, Syn.* 90: *Godr. fl. lorr.* 85: *Schultz, cent.* 3, *no.* 24. *V. odorata-hirta, Rchb. ic.* 7, *f.* 4497.—Flowers *odorous.* Sepals oblong, obtuse. Inferior petal emarginate, the others entire or subemarginate, the two lateral *scarcely ciliated.* Capsule downy. Leaves oval-acuminate, those from the root large, deeply emarginate, *more openly heart-shaped* than in *V. hirta;* those of the stem smaller, *almost* *triangular,* emarginate at the base only; stipules linear-acute, strongly glandular-ciliated. *One or many* lateral *stems,* procumbent, not rooting, *herbaceous,* bearing flowers the first year of their development. Rhizome short, knotty, scaly, branched.—Plant more or less downy or hairy; flowers *white,* slightly violet before expansion.

β. pungens. Spur acute.

HAB. Environs of Lyons, Besançon, Nancy, Grenoble.

V. ODORATA, *L. sp.* 1324: *DC. fl. fr.* 4, *p.* 803: *Dub. bot.* 63: *Lois. gall.* 1, *p.* 131: *Mut. fl. fr.* 1, *p.* 118: *Rchb. ic.* 68, *f.* 4498.—Flowers *odorous.* Sepals oval-oblong, obtuse. The four upper petals entire, the lowest emarginate, the two lateral closely ciliated. Capsule downy, very rarely glabrous. Leaves largely oval and deeply heart-shaped, those of the stolons of the ear *reniform;* stipules oval, acuminate, *larger* than in *V. alba.* Lateral stems procumbent, *rooting,* somewhat shrubby, bearing flowers only in the *second year* of their development.—Plant puberulent or pubescent; flowers violet or white.

HAB. Hedges and hillocks; the variety with a glabrous capsule at Besançon."—*Flore de France,* vol. ii. p. 176–7.

My own conviction with regard to these plants is that hinted at in the 'Cybele Britannica' (vol. i. p. 175), which has been advocated on the Continent by the learned author of the 'Rheinische Flora,' viz. that they are *modifications of a single specific type, produced by the influences of situation.* So far as I have had an opportunity of observing them, *hirta* is the plant of woods and banks, in limestone districts, and of dry sandy situations, in a word, of what Thurmann (*vide* 'Phytologist,' vol. iii. p. 918) calls dysgeogenous lands (*terrains dysgéogènes*); *odorata* (including *alba,** which I do not know that any one in this country has considered as distinct from it) of gardens, hedge-banks in cultivated neighbourhoods, thickets and copses in districts not specially dysgeogenous. I would ask any botanist who has been in the habit of collecting them, whether he has not frequently found modifications, in which the characters assigned above as diagnostic were awkwardly mixed up together (say, for instance, a stoloniferous rhizome in combination with petioles thickly covered with spreading hairs, or inodorous flowers in a plant scarcely more than "pubescent or puberulent"); or any one who has a good series of specimens in his collection, whether there is not a certain proportion of his examples which he cannot (on the hypothesis of the existence of two or more distinct species) clearly and confidently decide upon. It would not be difficult to multiply quotations from descriptive authors, in illustration of the fact of the existence of these intermediate forms, one of which we have seen above treated as a hybrid production, but I will rest contented with adducing the testimony of two of the most eminent, Fries and Reichenbach.

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* Between these two, *i. e. odorata* and *alba,* an intermediate form is *V. odorata lilacina* of Rossmäsler, "sarmentosa, sepalis lingulato-oblongis patentibus obtusis, floribus lilacino variegatis."—*Vide Flo. Excurs.* p. 705.

FRIES. "*Viola odorata* sativa et efferata folia habet glabra; *spontanea* præcipue subtus pubescentia, ex analogiæ Pastinacæ, etc. At V. odorata, *Linder*, ad Borgholm, stolonibus nullis, foliis latius cordatis magisque villosis nimis recedit; potius *V. collina*, Bess. en. Volh. p. 10. Alia inter *V. hirtam* et *odoratam* media forma in Scania."—*Novit. Fl. Suec. edit. alt.* p. 272.

REICHENBACH. "*V. campestris, M.B.*, acaulis eflagellis, foliis cordato-oblongis piloso-hirtis, sinu baseos aperto utrinque arcuato, calycibus obtusis; *Rchb.* pl. crit. 1. ic. 89–91. Affinis quidem *V. hirtæ* ('quacum minus bene conjungitur,' M.B.) sed foliis basi subtruncatis (in illa demum profunde cordatis) oblongioribus et petalis minime emarginatis odoratis saturatioribus distinguenda. *V. revoluta, Heuff.*, hujus folia, V. hirtæ corollas emarginatas refert, num hybrida aut potius transitus?"—*Fl. Excurs.* p. 705.

The subject at present was specially forced on my attention by a visit the other day to Beckdale, or Birkdale, one of the smaller dales of our North Yorkshire oolitic moorlands, interesting botanically as a rich locality for several of the rarer limestone plants, amongst which are *Cypripedium Calceolus, Actæa spicata, Helleborus viridis, Hordeum sylvaticum*, etc. In the lower and more shady parts of the woods, the Violet assumes the form of ordinary *odorata*, profusely creeping and sweet-flowered; but it may be traced by gradual stages of transition, till it shows itself on the dry limestone rocks and *débris* above, in the form of veritable *hirta*, with "scentless flowers," petioles thickly covered with spreading hairs, "stolons none."

An account of Localities of some of the rarer British Plants and others noticed in North Wales by Mr. Pamplin *and* Mr. Irvine, *in September,* 1854.

(*Continued from page* 57.)

If we had all the needful pre-requisites, we would spend a fortnight in the neighbourhood of Llanrwst; not in the town, but somewhere in the upper part of the vale, which is exquisitely beautiful. Trefriew would be a very convenient locality for lodging while visiting Carnedd Llewellyn. It appears to be the nearest spot to the lake Geirionydd, where once lived the famous bard Taliesin, as well as to the lofty mountains whence this lake is fed. The mountain village of Llanrhychwyn is only about a mile from the latter place. Another station which we would select is Bettws-y-coed, the village in the wood, and we would recommend this to visitors as one of the most charming spots in Wales. From this village the celebrated falls of the Llugwy, the lofty Carnedd David, and lake Conway, are all within an easy distance. From this place, or from Capel-Curig, Nant Francon, or the pass through which the Llanrwst and Bangor road passes, might also be visited.

This neighbourhood, viz. the upper vale of Llanrwst, with the beautiful Gwydir plantations, and the celebrities above noted, would engage the lover of scenery and rare plants about a month, and would be a treat of no ordinary kind. In this locality, Mr. Pamplin collected *Thlaspi alpestre* upon a wall by the roadside, near Gwydir chapel, as you go from Trefriew to Bettws-y-coed, for some considerable distance along the road, and in abundance, and *Erysimum cheiranthoides;* also the blue variety of the *Viola lutea*, which abounds in Merionethshire, and with the yellow form *amœna* adorns the borders of fields and waysides for miles; but we are persuaded that many more rarities will reward the energy of the untiring botanist if he goes at the right time, which we think is about the end of July or beginning of August.

We left Llanrwst about one o'clock, and took the upland road to Pentre Voelas, leaving the great road and the Conway on our right. This road, for the most part, passes through a bleak, elevated country. About three miles of it from Llanrwst was a gradual ascent, and the acclivity in some parts was rather steep. The greater part of this portion was well wooded. The slope overhanging a branch of the Conway was mostly covered, or fringed with plantations, with fertile meadows at the base. The rest of the way to Pentre Voelas was high, desolate, and exposed. Long reaches of country in the direction of Lake Conway and Penmachno were seen, pictures of sterility and tameness. On the Denbigh side the lofty hills did not allow us any very extensive prospect. The road was bounded with the common stone walls, which are not in any case picturesque, but they do not obstruct the view as hedges do. The reapers were busy cutting or carrying their poor crops, which are late in these elevated parts. All along the sea-coast, as we travelled from Aber to Conway and from thence to Llanrwst, the harvest was finished, and admitted even by farmers to have been abundant; but here, in the South of Denbighshire, it was not nearly concluded, and somewhat scanty. The only plants noticed were *Melampyrum montanum*, Johnstone, several *Hieracia* and Roses. We reached Pentre Voelas, nine or ten miles from Llanrwst, between three and four o'clock; there we rested, refreshed, and read the paper for about an hour. At this point the mountain-road regains the great Welsh road from Llangollen to Bangor, and along this we walked on to Cerrig-y-druidion, which we reached about six o'clock, and were soon washed and seated by a blazing fire,—a great comfort after a long day's walk; and this was so, for we had been on foot from between five and six o'clock in the morning till between six and seven in the evening, and had traversed upwards of twenty-five miles, besides the strolls about Conway and Llanrwst.

The next morning did not belie the common fame of Welsh weather, which was a small, drizzly, close rain, with a very high wind, and we were in a very elevated locality; the country for about two or three miles being of the same open character as that which we passed through the previous day. The scenery changed about half-way from Cerrig-y-druidion to Corwen. But Pont-y-glyn, about two or three miles from Corwen, is a celebrated scene. Here the road crosses a branch of the Dee, along which we walked till we came to the principal stream, about a mile on the west of Corwen. The views about Corwen are very fine; not very romantic, but beautiful. Wood, water, hill, and vale unite in rendering this one of the loveliest walks we had enjoyed; and we did enjoy it, though wet through. The base of the lofty Berwyn mountains skirts the road on the right hand all the way from Cerrig-y-druidion to Llangollen. Corwen is a little town with a good inn, where a man fond of fine walks might pass a week or two. We do not think that the plants about this place would detain a botanist a single day. The road from Corwen to Llangollen lies along the right bank of the Dee, which is a noble stream below Corwen. The country is in many places open, affording fine views of the Dee valley. About two or three miles from Llangollen the road descends into the vale, and here the peculiarities of this celebrated vale commence. We will not attempt to describe it, but would recommend those who love scenery, and can afford the time and other *etceteras,* to go and see it, which may now be easily accomplished in two days, viz. by taking an early train from London, either *viâ* Shrewsbury or Chester, and taking the omnibus from Llangollen road station. We felt a great change when we reached the vale. The wind, which was boisterous heretofore, was now only heard howling over our heads, or seen chasing away the flying clouds; we were far below its influence. The rain, which on the elevated part of the country was very heavy, diminished here, and ceased ere we reached the town. But long ere this we were soaked through and through; and one of us, on our arrival, went to Bedfordshire till his clothes were dried. We would recommend this to all tourists who carry their wardrobe on their backs, as we did. If they get a thorough soaking, they should take a bath, if a bath can be had; and if not, the best substitute for one which the place affords; use plenty of water and towels; if hot water can be procured, so much the better; after this, let him do as the Mayor of Altringham does while his smallclothes are mending. And we would further recommend him not to use the sheets, and to lie still till his clothes are dry. We adopted this plan, and did not experience any ill effects from having taken a shower-bath with our clothes on and then walked twenty miles before shifting. Next morning was the finest we had seen in Wales, and we saw no more of Wales, except the lower end of the vale of Llangollen, for we walked to the station, which is just on the borders, and waited half an hour, at least, for the early Chester up-train. About nine o'clock on the fourteenth day after we entered the Principality we completed the circle at the Oswestry station; having walked, according to our calculations, about 200 miles, and visited some of the most beautiful, wild, and terrific scenery in Wales; and considering the advanced period of the season, collected a considerable number of rare or otherwise interesting plants. We were in London about four o'clock of the same day on which we left North Wales. The most interesting and conspicuous objects about Llangollen, next to the scenery, which arrest the tourist's attention are, the ancient British fortification or Castle of Dinas Bran, and the remains of the Abbey *Vallis Crucis,* the Vale of the Cross. The former object, viz. Dinas Bran, is on the very summit of an isolated conical hill, which rises sugar-loaf-like to the altitude of near 2000 feet. The remains of this ancient building are still considerable, and the top of the mountain is well supplied with water. Northward of this hill, and lower down the vale, there are the mountains of Eglwyseg, of a very remarkable aspect. The upper part of these are broken into four or five deep, perpendicular cliffs, ranged one above another like a series of parallel terraces. These precipices extend along the mountain for some distance. The ruins of the Abbey are about two miles from Llangollen, on the road to Ruthin. They are situated in the centre of a small rich meadow, and are of considerable extent. The remains sufficiently attest the great architectural beauty and former magnificence of this once sacred edifice. We should enjoy a fortnight's botanizing about Llangollen, and we should prefer the month of July for this excursion. In deference to such of our readers as may think that there has been "much cry and little wool, as the clown said when he sheared the pig," we beg to remind such, in our justification, that we did not go a-herborizing, but to get fresh air, change of scene, and exercise. All these we enjoyed to our entire satisfaction. We noticed the rare plants in our way, but we never went out of our way to look for them. From what we saw of the botany of Wales, we think, as we believe we have formerly intimated, that it would be a promising field for a young and ardent botanist, who possessed the requisite knowledge, and the means for exploring it. We think that the labour would overtax the physical powers of men somewhat past the middle term of life. We should like to see a complete list of the plants of the Principality, or of the vegetation of North Wales in particular, and we should like it all the more if it contained the Welsh or ancient British popular names. The Botanology of Davies would be both a guide and a sample of such a work as is at present one of our botanical desiderata.

(*To be continued.*)

A Catalogue of certain Plants growing wild, chiefly in the environs of Settle, *in Yorkshire, observed by* W. Curtis, *in a Six Weeks' Botanical Excursion from London, made at the request of* J. C. Lettsom, M.D., F.R.S., *in the months of July and August,* 1782.

(*Continued from page* 39.)

22. *Asperula Cynanchica. Squinancywort.*
Rubeola vulgaris quadrifolia lævis, floribus purpurantibus. *Raii Syn. p.* 225.

On the limestone hills about Conzie, near Kendal.

23. *Galium montanum.—G. saxatile,* Lin. *Mountain Ladies' Bedstraw.*
Mollugo montana minor Gallio albo similis. *Raii Syn. p.* 224.

The most general plant on all the northern mountains. The summit of Ingleborough is principally covered with it and the *Juncus squarrosus.*

24. *Galium boreale. Cross-leaved Ladies' Bedstraw.*
Mollugo montana erecta quadrifolia. *Raii Syn. p.* 224.

Plentiful on the hills betwixt Kilnsay and Grass Wood, more especially among some rocks in Grass Wood.

25. *Alchemilla vulgaris. Common Ladies' Mantle.*
Alchimilla. *Raii Syn. p.* 158.

There is scarce a pasture or moist bank in Yorkshire on which this pretty plant does not occur. [This is one of the commonest plants about Settle, especially about the sides of roads, which traverse the hills in all directions.]

26. *Alchemilla alpina. Mountain Ladies' Mantle.*
Alchimilla alpina pentaphyllos. *Raii Syn. p.* 158.

This species, which far excels the other in beauty, is by no means so frequent. I first found it on a hill called Limestone Knot, in Longsledale, a place mentioned by Wilson in his 'Synopsis;' further on in Longsledale, or, as it is there called, Longsleddel, on the high and romantic rocks about Buckbarrow Well, the botanist will find it in abundance.

27. *Potamogeton setaceum. Setaceous Pond-weed.*

In the ditches on Brigstear Moss, with the *Utricularia*, plentifully.

28. *Anchusa sempervirens. Evergreen Alkanet.*

Buglossum latifolium sempervirens. *Raii Syn. p.* 227.

From the paucity of places in which this plant was said to have been found wild, and the suspicion which rested on some of those, I had entertained doubts of its being a native of this country: those were entirely removed on my finding it tolerably plentiful in the lanes about Giggleswick, and in the road between Settle and Ingleton. [Will any of our correspondents inform us if this plant still grows about Giggleswick?]

29. *Primula farinosa. Birds' Eye.*

Verbasculum umbellatum alpinum minus. *Raii Syn. p.* 285.

Grows everywhere with the *Pinguicula*. A variety, with white blossoms, has not unfrequently been found; in a bog in Skirrith Wood, near Ingleton, I gathered specimens a foot and a half high. [We have seen a variety of this pretty plant gathered either here or still further north. We do not allude to the white-blossomed plant, but to an acauline or very dwarf form.]

30. *Anagallis tenella. Bog Pimpernel.*

Nummularia minor flore purpurascente. *Raii Syn. p.* 283.

Common on the bogs. The largest and finest plants I ever saw of this species, grew in a bog betwixt Kendal and Longsledale.

31. *Polemonium cæruleum. Jacob's Ladder.*

Polemonium vulgare cæruleum et album. *Raii Syn. p.* 288.

In tolerable plenty at Malham, or, as it is there called, Maum Cove, by the side of the rivulet which springs from the base of that stupendous rock. I found this plant also in much greater plenty in Conistone Dib, in a low wood, under shelter of some high and romantic rocks, a situation it seems to affect. Also on Arnber Scar, on the left-hand between Kilnsay and Arncliff. [This rare plant grew about the rivulet below Malham Cove in 1852. We have seen it much more plentiful and finer in Derbyshire.]

32. *Samolus Valerandi. Water Pimpernel.*

Samolus valerandi. *Raii Syn. p.* 283.

Observed a few specimens on Brigstear Moss.

33. *Campanula latifolia. Giant Bell-flower.*

Campanula maxima foliis latissimis. *Raii Syn. p.* 276.

Extremely common about Settle and elsewhere, under the stone walls and hedges. The country people improperly call them Foxgloves.

34. *Ribes rubrum. Common Currants.*

Ribes vulgaris flore rubro. *Raii Syn. p.* 456.

On the hedges of the wet ditches, and in the woods about Carr End, Wensleydale. [We believe that there is more than one species of *Ribes* about Settle, or at Ingleton.]

35. *Gentiana Amarella. Autumnal Gentian.*

Gentianella pratensis flore lanuginoso. *Raii Syn. p.* 275.

Common on limestone hills and pastures.

36. *Ulmus campestris*, var. γ, Hudson. *Wych Elm.*

Ulmus folio latissimo scabro. *Raii Syn. p.* 469.

Common in hedges and woods. It is much superior in size and beauty to the common Elm, and deserves to be more generally cultivated.

37. *Œnanthe crocata. Hemlock Water-dropwort.*

Œnanthe cicutæ facie lobelii. *Raii Syn. p.* 210.

In the wet ditches betwixt Kendal and Longsledale, and in similar situations in many parts of Yorkshire.

38. *Scandix odorata.—Myrrhis odorata*, Scop. *Sweet Cicely.*

Cerefolium magnum sive Myrrhis. *Ger. emac. p.* 1039.

This plant is not mentioned by Mr. Ray in his 'Synopsis;' and Mr. Hudson introduces it as a doubtful native. The situations in which I found it clearly convinced me it had a good title to be considered as a native of Great Britain; and I was confirmed in my opinion by the common people, who find it wild in many places in the greatest plenty, and call it by the name of *Sweet Ciss*, an abbreviation of *Cicely*. They rub their furniture with it, to give it a gloss. It is common under the stone walls about Settle, at the entrance into Kilnsay, and in Whitfell Gill, near Askrig. [It is very abundant on both sides of the mountain stream that flows into the Ribble below Stainforth, and along the course of the latter.]

39. *Pimpinella Saxifraga. Burnet Saxifrage.*

Pimpinella saxifraga minor, foliis sanguisorbæ. *Raii Syn. p.* 213.

Very frequent in the fissures of the limestone rocks about Settle.

40. *Parnassia palustris.* *Grass of Parnassus.*
Parnassia vulgaris et palustris. *Raii Syn. p.* 555.
Very common in bogs and wet meadows.

41. *Drosera rotundifolia.* *Round-leaved Sundew.*
Ros folis folio rotundo. *Raii Syn. p.* 356.

42. *Drosera longifolia.* *Long-leaved Sundew.*
Ros folis folio oblongo. *Raii Syn. p.* 356.

I found these two species pentifully in the North; but nowhere in greater plenty or perfection than on Brigstear Moss, near Kendal, where they grow to twice or thrice the size they usually acquire with us; but in other respects appeared to me to afford no truly specific character. It is very probable that the three species enumerated in Ray, in addition to the above, will be found to be varieties only.

[Nos. 21, 23, 24, 25, 29, 31, 33, 34, 35, 38, 39, 40, 41 were gathered in 1852.]

(*To be continued.*)

Reviews.

The Ferns of Great Britain and Ireland, Nature printed. *By* THOMAS MOORE, F.L.S. *Edited by* JOHN LINDLEY, Ph.D., F.R.S. *Nature printed* by Henry Bradbury. London: Bradbury and Evans.

Three parts of this grand work are already published, and the remainder will follow at the rate of one part, monthly, till the whole is completed. We have seen two of these monthly deliveries, and have much pleasure in laying before our readers an account of one of the most magnificent contributions to British botany that has hitherto appeared. Indeed it may be said that since the publication of the 'Illustrations of the *Genus Pinus*,' by A. B. Lambert, Esq., no botanical work, comparable to this, has appeared in Great Britain. We have not space to enter into the merits of nature printing, nor to explain its capabilities of representing external forms with perfect accuracy, even to the minutiæ of veins, hairs, and other superficial accessories, whereby plants are chiefly distinguishable from each other. This the editors have done in the preface to the work, and to this we refer our readers, as they will therein find more information on this head than we can supply. This work, as the preface states, differs from all other illustrated botanical works hitherto published in this country, not merely in giving representations equal in size to the natural objects, affording perfect *facsimiles,* both in form or outline of the original, but also in supplying the minutest details of outward appearance, even to the different shades of colour which often appear in the same specimen. It would be a futile effort to attempt a description of the plates; they must be seen to be appreciated. Botanists even, unless conversant with this branch of the science, will fail to appreciate the nice accuracy, the beauty, fidelity, and perfection of this manner of illustration. These extremely delicate and exact figures are the best possible evidence that nature printing may and will be extensively adopted as a medium for displaying the vegetable kingdom; we had almost written, for superseding *herbaria.*

The name of Mr. Moore, author of the 'Handbook of British Ferns' (*see* page 66), is an ample guarantee for the faithful and practical nature of the letter-press descriptions. Here we need not speculate largely on the belief and confidence of our readers, for we have the means of submitting to their notice satisfactory evidence, and thus giving them the means of *drawing* their own conclusions.

The two parts before us contain the British *Polypodia. Polypodium vulgare* is illustrated by three folio plates, each plate containing two or more figures (the first represents six different forms). This part concludes with two diagrams explanatory of the terms employed in describing Ferns. The second part contains three plates, having each three or four fronds of the remaining British species of this genus, *P. Phegopteris, P. Dryopteris,* and *P. Robertianum,* Hoff. (*P. calcareum,* Sm.).

The following is an example of the text, which is very explicit, we may say, elaborate; and indeed in a work of this nature it ought to be so. *P. Phegopteris* is selected.

Habitat.—This species is rather widely dispersed, and not unfrequent throughout Great Britain, occurring most abundantly in the North of England and of Scotland; inhabiting shady humid places, and usually districts which are more or less mountainous. In the south-eastern parts of England it appears to be wanting, but it is found rather plentifully in Sussex and in the western counties. It occurs plentifully in Wales, and is also met with in the Hebrides and Orkneys, Shetland, and the Isle of Man. In Ireland it is rare, occurring principally in the northern and eastern provinces. In elevation it extends from the coast level in the west of England to upwards of 3000 feet in the Western Highlands.

Geographical Distribution.—This fern is scattered nearly throughout Europe, extending from Iceland and the Scandinavian countries southwards through the British Isles and continental Europe to Spain and Italy. In Asia it is recorded from Unalaschka and Kamtchatka, and also along the chain of the Altai (Hb. Hooker). Algeria, in Africa, is also mentioned as producing it; whilst in America, where it is sometimes known under the name of *P. connectile,* it is met with from Greenland and Labrador on the eastern side, to Prince William's Sound on the western, extending southwards to the Rocky Mountains, to Canada, and to the Northern United States (Hb. Hooker).

Rhizome.—Creeping extensively, branched, tough, slender, about the thickness of a straw, dark brown, pilose and slightly scaly while young, the older portions denuded both of scales and hairs.

Scales.—Lanceolate, golden brown, intermixed with other cobwebby hair-like ones.

Fibres.—Numerous, much branched, dark brown, invested with golden-brown cobwebby deciduous pubescence.

Stipes.—As long as, or more frequently longer, and often much longer, than the frond, erect, brittle, pale green, furnished near the base with a few scattered subulate scales; the whole length clothed with minute reversed hairs; distant and lateral on the rhizome.

Vernation.—Circinate; the pinnæ rolled up separately towards the rachis, which is then rolled from the point downwards.

Fronds.—From four to eighteen or twenty inches in length, including the stipes, adherent to the rhizome, membranaceous, of a dull pale green, hairy, ovate-triangular, much acuminate, pinnate below, the apex of the frond pinnatifid. Pinnæ deeply pinnatifid, linear acuminate, nearly or quite opposite, the lower pair lanceolate, deflexed, sessile, but attached by their midrib; distant from the upper pinnæ, which are sessile and broadly attached, and, except occasionally the second pair, confluent, so that the united bases of the opposite pairs form by the direction of their two basal lobules a cruciform figure; all the upper pinnæ have their points directed towards the apex of the frond. Lobules oblong, obtuse, entire or slightly crenato-dentate, directed towards the apex of the pinnæ.

Venation of the lobules—consisting of a flexuous *midvein,* from which proceed alternate or sometimes opposite veins; these veins extend to the margin of the lobule, and are either simple or become once forked about halfway their length (the simple veins?), or when divided, the anterior of the *venules,* bearing a sorus at a short distance from the edge of the lobule

Fructification.—On the back of the frond, scattered almost equally over the whole surface.

Sori, or *clusters of spore-cases.*—Circular, small, quite destitute of covering, arranged in a series near the margin of the lobules, and often becoming confluent in lines. Where the fructification is but partially developed, only one or two of the lowermost veins are fertile, in which case the marginal series of sori is not very manifest.

Spore-cases.—Small, numerous, pale brown.

Spores.—Ovate, smooth.

Duration.—The rhizome is perennial. The fronds are annual; produced about May, and destroyed by the early frosts of autumn.

This ample description is followed by diagnostic observations, critical remarks, and valuable directions for cultivation. We have noticed these last in our review of the 'Handbook of British Ferns,' by the same author (p. 66). In fine, this splendid and elaborate work on one of the most interesting families of British plants, is specially recommended to all students of this difficult order, and to all cultivators of these interesting and now fashionable plants, as a trustworthy authority; we anticipate that it will eventually be received into the lady's boudoir, and get a place among other works of art on the table of the drawing-room.

Museum of Economic Botany; or, a Popular Guide to the Useful and Remarkable Vegetable Products of the Museum of the Royal Gardens of Kew. By Sir W. J. Hooker, K.H., D.C.L., etc., Director.

This is a small book, but its contents are very important. From the vegetable kingdom (of which this well-filled treatise of eighty pages is an epitome) we derive most of our food, our clothing, the materials of our habitations, our furniture, our luxuries and our necessaries, all or most of our medicines, and most substances employed for ornament or art. All, or nearly all, of these are enumerated and arranged in the closely-printed tract on our table. All the families of plants, from that containing the sturdy Oak, the everlasting Cedar, the rich-coloured Mahogany, the classical Laurel, the funereal Yew and Cypress, down to the lowly Moss, the reindeer Lichen, the perishable Fungus, and the destructive Dry-rot (*Merulius lachrymans*), are each and all amply represented in this catalogue. The vegetable substances employed for food, or from which food is prepared, form a very prominent part of this remarkable collection. The vegetable materials manufactured into cloth, bags, mats, cordage, etc., are scarcely less important than those supplying human food. If to these we add the medicinal plants, together with those used in art and in our various manufactories, we may have some idea of the magnitude of this great national repository. When we state that the Museum contains the famous collection formed by Messrs. Peter Lawson and Son, one of the attractive features at the Great Exhibition of 1851, also the extensive samples of woods, both British and foreign, which were the admiration of thousands who visited the Crystal Palace, our readers will have only a very incomplete notion of the value and interest of these specimens of the vegetable kingdom. They must be seen to be sufficiently appreciated and admired, and they should be examined with this comprehensive handbook as a guide or index to their names and properties.

The catalogue commences with Room No. 1, and with the *Ranunculaceæ*, or Crowfoot family, plants which, though destitute of dietetic properties, yield many powerful medicines. These plants, and the various articles prepared from them, occupy the first case. The principal plants of almost every family are described or named, and the products which they bear are succinctly stated. We will give an example or two of the author's luminous mode of representing the objects of the Museum.

"PAPAVERACEÆ. *Poppy Family.*—This possesses narcotic and acrid properties in an eminent degree. The juice is often white, yellow in *Chelidonium majus*, red in *Sanguinaria canadensis.* One species alone, the *Opium Poppy*, may in its legitimate use be reckoned amongst the greatest blessings to mankind, 'magnum Dei donum;' and by its misuse the greatest curse. Pereira's 'Elements of Materia Medica' bears ample testimony to the former, and the 'Confessions of an Opium-Eater' to the latter. Upwards of six millions of pounds are manufactured and sold by the East India Company; twenty millions of pounds are consumed, at a cost of twenty millions of English money."

We refer our readers to the interesting account of the preparation of this drug. *See* pp. 13, 14, 15 of Catalogue, and 'Kew Garden Miscellany,' vol. vi.

"CRUCIFERÆ.—*Tree* or *Cow Cabbage*, one of the most remarkable of the Cabbage kind, having a hard, woody stalk. . . . We remember a dried stalk in Mr. Lambert's possession thirteen feet high. This is mainly produced by daily pulling off the lower leaves as fodder for cows, leaving foliage only at the top; thus a small garden of them has almost the appearance of a little plantation of Palms. Planted close, as living fences, they keep out fowls and small animals. Sheds are thatched with the dried stems; they serve as stakes for kidney-beans, peas, etc.; and as cross spars for upholding the thatch or roof of cottages and other farm buildings."

We have seen this cabbage cultivated in the South of England, but we never saw it average more than three or four feet in height. It appears to need the sea air, as well as a milder climate than ours, to produce it in perfection.

"MALVACEÆ. *Mallow Family* (cases 4 and 5, Room 1)."—The famous Cotton plants, *Gossypium herbaceum* and *G. barbadense,* are found in this Order, on which volumes have been written. The author of the Catalogue gives us an extract from Dr. Royle's work on the 'Culture and Commerce of Cotton in India,' etc.: London, 1851. From this it appears that this material is capable of being spun into threads of exceeding fineness; for example:—a pound spun into a hundred hanks will extend 84,000 yards; one of three hundred hanks will extend 252,000 yards; one of six hundred hanks is of the amazing tenuity of gossamer, too fine to be handled, and can only be looked at.

TERNSTRŒMIACEÆ. *Tea Family.*—It appears that three kinds of Tea are cultivated—*Thea viridis, T. Bohea,* and *T. assamica.* Mr. Fortune has stated that the black and green teas of commerce may be prepared from either of the two first-mentioned species. We have not talked with any shopkeepers on this subject who did not demur to this statement. All sorts of tea ever produced either in China or in London are to be seen in the Kew Museum—from the common congous to the imperial, prepared only for royal and imperial lips. Here is Assam tea and medicated tea, paper tea and yellow tea, Tartary tea and Russian tea. Here are also the flowers of tea; and, oh, *horribile dictu!* a case of the various ingredients used by the Chinese in the manufacture of *Green Tea,* viz. turmeric, gypsum, and Prussian blue, with spurious teas, adulterated teas, etc.

"LEGUMINOSÆ. *Leguminous Family.*"—We regret that we can only afford room for the following extract:—

"*Lentils,* seeds of *Ervum Lens* (fig. 10), of which 24,468 bushels were imported in 1853. '*Revalenta*' of the shops is a flour or meal prepared from the seeds of *Lentils*, to which the fabricators give a strangely corrupted name, and in order, it would appear, to carry the deception further, the advertisements exhibit a tropical scene of lusty Negroes cutting down Palm-trees amid Hindoo temples for the preparation of Lentil meal from a humble Vetch."

"SOLANACEÆ. *Nightshade Family.*—Properties: in some narcotic and poisonous, in others acrid and irritant. . . . *Potatoes,* the tubers of *Solanum tuberosum,* originally from Peru and Chili." In a note it is stated that "the average consumption of potatoes in Ireland is stated to be about eleven pounds a day for each individual." *Tobacco, Nicotiana Tabacum.* Thanks to our mercantile friends, this collection is so rich in kinds, species, and varieties, *Cigars* and *Snuffs,* that we can only refer to the named samples in case No. 31 of this Room (No. 3), and upon the walls at the entrance to Room No. 5 from No. 3. In a foot-note we are informed that Manilla is "the most extensive cigar manufactory in the world. Here are two establishments: the one had 8000 females employed, and each produced (made) 200 cigars a day. All the persons employed in both amount to 15,000, and all are searched twice a day to guard against pilfering."

"PALMACEÆ. *Palm Family.*—It would require a volume to notice the several uses that mankind derive from Palms.

> 'The Indian nut alone
> Is clothing, meat and trencher, drink and pan,
> Boat, cable, sail and needle—all in one.'

They yield timber, fibre of every variety, oil, wax, starch, sugar, daily food, mild and intoxicating drink. It is difficult to say what they do not afford, and impossible in a brief catalogue to notice a tithe of the contents of this collection (Rooms No. 4 and 5, ground floor)."

"GRAMINEÆ. *Grass Family.*—One of the most extensive and useful of all the Natural Orders, yielding food for man and fodder for cattle in almost every region of the globe. Room No. 6 is wholly devoted to its products, and the greater portion of these formed part of the great agricultural collection of Messrs. Lawson, to whose volume we must refer for particulars of all that are cultivated in Europe. Our own additions are too abundant for enumeration in this catalogue."

"MUSCI. *Moss Family.*—*Bog Moss, Sphagnum latifolium,* and other species, absorb and retain moisture, and hence are useful in packing living plants for long voyages." We are also informed that the Lapps swathe their children in it till they are old enough to take care of themselves.

LICHENS. *Lichen Family.*—Several are nutritious, as *Iceland Moss,* and many yield dyes of considerable importance to manufacturers. See a review of a series of experiments and their results in our Journal for July (July number of the 'Phytologist').

Of the Order FUNGI we have only room to notice the Vinegar Plant, or Mother of Vinegar, a very minute Fungus, which, by aggregation, forms a tough, leathery substance, only limited by the size of the vessel where it is produced. We intend shortly to devote a few lines of the 'Phytologist' to the history of this curious vegetable. Under the head of *Miscellanea* there are vast collections of woods, artificial flowers, vegetable productions, vegetable manufactures, interesting plants, relics, samples of the most elevated vegetation in the world, specimens of Tunbridge ware, Mauchline snuffboxes, etc.

The catalogue is illustrated with numerous cuts; and we notice a very good index to the contents of this interesting collection, which we need not recommend our readers to visit. It is visited by hundreds of thousands whom our publication has not *yet* reached; but we recommend our readers to procure this comprehensive account of a Museum which is likely to become one of the most extensive and useful collections in the world.

Musci Fifenses: Specimens of the Mosses of Fifeshire. Illustrated by Notes relative to their distribution over the County. By CHARLES HOWIE, A.B.S. St. Andrew's: Cook.

We have seen 15 specimens of the Fifeshire Mosses, viz:—5 species of *Hypnum,* 6 ditto of *Bryum,* and 1 species of *Bartramia, Funaria, Hookeria, Anœctangium,* respectively. These samples are well dried, mounted, and mostly in fruit, and when the series is completed it will form a desirable volume. We hope the author will obtain sufficient patronage to defray the actual disbursements. The labour of love will be his sole remuneration.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Percepierre.—In the 'Gardeners' Chronicle' for April 28th a correspondent asks, "Will you have the goodness to let us know what is the real name of a plant which grows on the west bank of the Avon at Keynsham, about five miles above Bristol?" He then describes the plant from Camden's 'Britannia,' and quotes Ray's Hist. Plant. iv. 14. He receives the following reply:—"The plant is *Aphanes* or *Alchemilla arvensis*, a common weed in gravelly places, and commonly called Parsley Peart, a corruption, we suppose, of *Percepierre*." In the same publication for May 5th a correspondent states, "Allow me to inform your correspondent that *Crithmum maritimum* is called *Percepierre* in Guernsey, where it abounds, etc. It is often collected for pickling, for which purpose I was told it is excellent." (E. Y.) The editor or correspondent adds, "and so it is." We give our feeble testimony to this fact, and also Shakspeare's,—

> 'Halfway down hangs one that gathers Samphire—dreadful trade!'

But Samphire does not grow at Keynsham, nor within many miles of it. *Crithmum* is a maritime plant. *Percepierre* is an exact translation of *Saxifraga*, a name applied to many Umbelliferous plants supposed to be remedial agents in calculous disorders. If A. F. will send us a specimen of the plant in question, we will undertake to tell him its name. Smith, Eng. Fl. vol. i. p. 224, gives *Percipier Anglorum* as a synonym of *Aphanes arvensis*, Lin.; but as local names are very uncertain, it would be useless to say what is the name of the plant in question. Send a specimen.

On the predilection of Cats for certain Plants.—The fondness of the domestic cat for some plants, as Valerian and Cat Mint, is well known, but I do not know whether it has ever been recorded that *Nemophila insignis* is another favourite plant. I have in my garden three patches of this plant, all of which, at an early period of their growth, looked as much soiled and trampled as if they were growing by the side of the highway. I suspected Puss was the author of this, and on looking close to the plant discovered portions of her hair. I then enclosed two of the patches with sticks bound together with twine, but found even this protection insufficient, as the sticks and string were thrust partly aside. After this, a girl who waits upon me told me she had seen the house cat go up to the patch which was less protected and roll herself upon it; and, lastly, three or four days ago, I saw the same cat with her head thrust beneath the fence I had made, and eating the plant—very quietly, but with an appearance of much satisfaction. *Nemophila*, when bruised between the fingers, yields no smell; its taste is slightly acrid, resembling some Cruciferous plants; to Puss however it must not only be medicinal, but likewise have an agreeable odour. (Mr. Moore, of Chelsea, confirms this.) The packet of seeds was labelled *Nemophila alba*, and, if I remember right, the plants have the usual speckled leaves, etc. In this garden and immediate neighbourhood *Nemophila* must be quite a novelty. E. L.

Temperature of the Spring of 1855.—The severity and lateness of the past spring may be shown by the following extract from a paper read at a meeting of the Botanical Society of Edinburgh on April 12th, 1855:—"Between the 10th March and 12th April, 1854, sixty-five spring flowering species were recorded, and during the same period this year only twenty-two of the species have come into bloom."

The weather on the last day of May, 1855, reminds us of our having seen the snow drifting in June, and having to cut green fodder and feed the working beasts within doors. The following extract will correct the misapprehensions of some people who believe that springs are colder and more backward than they were forty or fifty years ago:—

Extract from the Day-book of a Shopkeeper of Paisley.—"1809, May 30th.—This morning the ground all covered with snow, and people shovelling their entrys to their doors as in D'cemb'r. I seed them throwing snowballs at one another, and flying from under the side of the houses, from the snow, falling in torrents therefrom. I lifted the morsels of ice in large sheets one-third of an inch thick. I saw the trees fully in blosom, peeping their faces through the fleeshy snow, and their boughes bended by its weight. I could not but contemplate with wonder the mighty hand that giveth 'his ice in [like] morsels, and his snow like wool' [Psalm cxlvii. 16, 17] even in summer."

Will any of our contributors or correspondents inform us if *Corydalis solida*, which we have never seen except as a cultivated plant, occurs occasionally in groves or thickets? Can it be placed in the same class as *Anemone apennina* and *Eranthis hiemalis*, which have been reported in our times as naturalized? The following quotation is from Withering's Br. Pl., 1796, vol. iii. p. 620:—"*F. intermedia* (*Corydalis solida*) was first sent to me by Mr. Hall, then by Mr. Gough, and afterwards by Mr. Robson. The former found it in Lavan's Park, five miles from Kendal; Watts' field, half a mile from Kendal, Mr. Robson; at Perry Hall, near Birmingham, in a meadow between the house and the river, Mr. Pitt."

Will our obliging correspondent, D. W., (p. 24,) send to our office a specimen of the large Umbelliferous plant which grows perfectly wild between Merstham and Gatton, Surrey? If he will favour us with the plant, we will do our best to tell him what it is.

Anacharis Alsinastrum.—Should any of your London readers desire to gather *Anacharis Alsinastrum* for themselves, they may readily do so from the River Lea, between Lea-bridge and the wooden bridge opposite Upper Clapton. It is especially abundant around a small wooden landing-place which is fixed against the signpost of High-hill Ferry-house. I first found it last summer. Microscopists may be glad to hear of its proximity, on account of its showing cyclosis so well. A. Evans, *Walthamstow*.

Another correspondent says, "it grows in ditches by the Thames side near the Bishop's palace at Fulham."

Communications have been received from

Rev. W. R. Crotch; Hewett C. Watson; J. N. (two communications); H. B.; J. G. Baker; J. Gifford (with a monstrous state of *Trifolium repens*); C. A. Lanyon (with a remarkable variety of *Lamium album* from the neighbourhood of Belfast); Isaac Carroll; M. E. G. A.; M. H; and A. J.

All Communications, Books for Review, etc., for the Phytologist, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Statistics of the Orders Berberidaceæ, Nymphæaceæ, Papaveraceæ, *and* Fumariaceæ, *with the duration, periodicity, habitats, and range (both horizontal and vertical) of the British Species.*

The European plants of the first-mentioned order are but few, and the American and Asiatic species are not numerous. Great Britain is reputed to produce two out of the three European species. Europe possesses six plants of the Water-lily family, and Great Britain three. If Dr. Lindley's estimate, viz. that "two-thirds of the *Papaveraceæ* belong to Europe," the whole number of species known is under thirty, and upwards of one-third are found in England. The *Fumariaceæ* are neither important in numbers nor in economical uses. Europe produces between twenty and thirty species, and Great Britain somewhat fewer than half as many. Something more precise can be advanced in reference to the accidents or conditions of the British species of these four small orders. The two representatives of *Berberidaceæ*, viz. *Berberis vulgaris* and *Epimedium alpinum*, if the latter be really a spontaneous production of England, are perhaps a fair proportion of the order, or as many species as could be expected in a limited area such as our country possesses. The common Barberry is confined to hedges or shrubberies, and is far from being abundant in the former habitats. It does not extend far into Scotland, and is said to be scarcely wild in the West of England. It may be presumed, that although its origin be accidental, yet it is established, and in all probability will be as permanent as many of our ligneous species whose nativity is unchallenged. It is not planted in hedges; for as a hedge plant it is worthless. There is also a prejudice against it, as rust in wheat is popularly ascribed to its malignant influence. *Epimedium alpinum* is frequently met with in gardens, and probably in some situations it might maintain its hold on the ground. The influence of these plants on the general aspect of the country is most inconsiderable, and neither of them would be missed were they to disappear, except by the botanist and the nurseryman. They flower before midsummer, and are perennials.

The Water-lily family, though containing but a few species, makes up for that in the number of individual plants, and especially in the magnitude and beauty both of their foliage and their flowers. These plants occupy deep rivers and other large pieces of still water, more or less over the whole extent of England and Scotland. In England the yellow Water-lily is more common than the beautiful white one, while the latter possesses a rather more extensive horizontal area. The former is rarely absent in our English sluggish rivers; the latter is often planted both in rivers and in other ornamental waters near mansions and the dwellings of the opulent. *Nuphar lutea* fails in the north of Scotland. *Nymphæa alba* exends even to the *ultima Thule* (Orkneys). The tyro will readily distinguish these plants from each other by the basal lobes of their large floating leaves. These are contiguous and parallel in the *white Water-lily,* and divergent and slightly distant in the *yellow one.* The leaves of the former are more rounded at the apex than those of the latter are, which are more elongate and sometimes abruptly pointed. In Cumberland the *white Water-lily* is found at the altitude of 400 yards: the *yellow one* does not reach above one-half of this elevation. *Nuphar pumila* is, as far as we know, confined to four Highland counties in Scotland, viz. Inverness, Perth, Argyle, and Aberdeenshires. It appears to be as limited in vertical as it is in horizontal range. These are all found on the European continent, the latter in Vosges and Germany. There is a *minor* of both the white and yellow Water-lilies reported from several parts of England and Scotland. Continental botanists acknowledge *Nymphæa alba,* var. *minor,* and quote Duby, Bot. 20, and Reichenbach, t. 68, f. 118. Their character is, "flowers only half the size of the common form in all their parts." These plants, which are highly ornamental wherever they grow, flower after Midsummer, and continue in flower all the summer. They are perennial.

Several of the Poppies are abundant in England, but only in cultivated places, or where the soil is annually more or less pulverized. They may be said, with only one exception, to depend entirely on cultivation. In July the corn-fields of England and Scotland, too, are red with the brilliant flowers of the commoner species. *Papaver Rhœas* is most common in England, and *P. dubium* in Scotland. *P. Argemone* in England is less common than the two former noted species, but it does not appear to have a predilection for any peculiar soil. *Papaver hybridum* is rather local, not extending so far north as Scotland, and in England being confined to cretaceous or to calcareous soils. The great white-flowered Poppy has been cultivated from time immemorial for medicinal, economical, or ornamental purposes; and hence it is pretty well established in the low fenny districts of the east of England, and in many other parts of the country, especially in the valley of the Thames, as about Greenhithe, Northfleet, and several other parts of Kent, where plants, at no very remote period alien to the English soil, now abound. That all these species are dependent on cultivation for their existence in this country, is evident from the fact that they are never found but in corn-fields or other cultivated places, or on rubbish, etc. They disappear in the pastoral districts of the west and south, except in gardens and in a few places where the turf is accidentally broken and the soil pulverized. The more generally distributed species either have been introduced at an earlier period than the others, or they are better able to bear the alternations of temperature than the less extensively distributed species are; or they may have no predilections for particular soils, as *Papaver hybridum* has. The Welsh Poppy (*Meconopsis cambrica*) differs from the above-mentioned annual species. It shuns cultivation, although it is occasionally found about roadsides in Yorkshire, where the seeds may have been accidentally dropped, and where they occasionally grow up. It grows on old mossy walls or on low cottage roofs in the same county. But in North Wales it is evidently at home on the ledges of rocks, *débris* of quarries, etc. It is also confined to the Western parts of Great Britain, where the country is rather pastoral than agrarial. It is true we have noticed it as a weed near the coast in the east of Scotland; but here it had the appearance of having owed its origin to garden plants; for it is a popular garden flower about Aberdeen. We believe *Chelidonium majus* to be as truly native, in England, as *Meconopsis cambrica* is universally allowed to be: with this slight difference. The Welsh Poppy would no doubt retain its place in certain parts of Britain even if the whole human family were to remove to another part of the world, and the whole of the British Isles were to revert to that state in which they were before a human being settled on them. The Celandine affects the vicinity of houses, because there, and there only, it finds a sufficiently nitrogenized soil for its economy. Many plants belong to this category or class. Many species assume a partially cosmopolitan character, or are always found where man pitches his tent, his tabernacle, or his more permanent abode. These accompany him in all his migrations, and abide with him under all circumstances. This is not precisely the case with the plant in question, for it is allowed to fail in Scotland. But the question may be asked, What is its native country? or has it any distinct or individual place whence it came to Britain? It must have originated somewhere. May it not have originally existed in more than one place? On the Continent it is reported to grow in such places as it occupies among ourselves. In the German floras the following habitats are given:—"An Mauern, auf Schutt, an Hecken, Wegen, in der Nähe der Wohnungen" (on walls, rubbish, by hedges and roadsides, close to dwellings). In the French floras it is described as growing about "haies, décombres, et vieux murs de presque toute la France." It is precisely in such situations where it grows in England. It has a considerable range, from the shores of the Mediterranean to the Baltic; and as it occupies similar habitats, we may ask, Is it a native of the continent of Europe? If the plant be not a native of France nor of Germany, because it grows near old walls and human dwellings, we believe that its native country has yet to be discovered, like that of the cereals and of many of our culinary vegetables. If it be a native of Germany and France, why may it not be a native of England also, seeing it is produced in like places both in England and on the Continent? With the simple exception of *Glaucium luteum* we give up the other transient, reputed British species of this order, as interlopers, or intruders; species of no certain habitation or locality; like vagrants, here today and away tomorrow. *Rœmeria hybrida* (Glaucium violaceum) has been established for many years in the east of England; but as it does not appear to migrate south or north, but is limited to a small area, it cannot be considered equally established with the commoner Poppies. *Glaucium phœniceum* and a *Hypecoum,* probably *procumbens,* have recently been noticed at Wandsworth with many other aliens; but in a locality and under circumstances which preclude the very possibility of their long occupying this station. In the British species of this order there are but two perennials, and they bid fair to exist as long as the human race exists in England, or in one case as long as the rocks endure. The others are annual, and are entirely dependent on agricultural or similar operations. They are all in flower about Midsummer, or soon after. The Celandine is in flower from May to August. This assigned period of flowering, it should be noticed, is for the south of England; and even here July is the month when the most of them are all in flower, although several flowers may be seen in June. The genuine Fumarias are all annual, and exist here under the same laws as limit the Poppies. These plants have increased, even within our remembrance, from two species, *F. officinalis* and *F. capreolata,* to five species; unless we must reduce this number by uniting *F. parviflora* and *F. Vaillantii,* about the distinctness of which there are doubts. But to this it may be said that *F. agraria,* Lagasco, has been reported from Ambleside in Westmoreland.* So that at all events we have had three if not four fresh introductions of Fumarias within the last twenty or thirty years: at least they were not observed anterior to this period; and it may be inferred that they did not grow here previously. *Corydalis claviculata,* though an annual, grows only under trees or bushes, or under rocks on stony places, and in such-like localities. This plant is in no way dependent on cultivation; it seldom grows near cultivated places. In the south of England it thrives in moist, soft, shady spots, where the ground is partially broken, laying hold of trees or humbler plants, or climbing up banks and walls. It is by no means a common plant; even where it is found, the number of individuals is not large. Its area is between 50° and 58° lat., and its vertical range is considerable. *C. lutea* and *C. solida* are perennial plants, and the former is never found in England, but on walls, and the latter in spots where gardens have been. Yet these two plants, universally deemed aliens, occupy precisely similar situations on the Continent as they do in England. *C. lutea* is "assez rare" in France, and in Germany "hier und da, sehr selten" (here and there, very rare). *C. solida* is found in woods and under hedges in both France and Germany. In the British Isles their area is limited to England. The *Fumarias* are, it may be said, confined to cornfields and to broken ground and rubbish. The two commoner species, or original species, as some botanists would say, extend over the whole island; possibly the others may in process of time have as extensive a distribution. They begin to flower a short time before Midsummer, and are in flower and fruit until autumn. *Corydalis solida* is only known here as a garden flower, and it blooms in April. *C. lutea,* which occurs occasionally on old walls, flowers in May and June.

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* See Bot. Notes.

On the Hieracia *of North Yorkshire and Teesdale. By* JOHN G. BAKER.

(*Continued from page* 51.*)

In his monograph, Fries has treated the genus as subdivided into five series or subgenera, each of which he considers might be employed as separate genera in a narrower sense. These he calls *Pilosella, Aurella, Pulmonarea, Stenotheca,* and *Accipitrina.* The species which make up the fourth mentioned series are mostly confined to America, and none of them occur within the limits of Europe, so that when treating of British or Yorkshire *Hieracia* we may dismiss it from consideration. But each of the others is more or less numerously represented in our field of research, and I have therefore given below an abstract of his observations relative to their characteristics.

1. *Pilosella.* Mode of propagation by emergent or subterranean stolons. Phyllaries irregularly imbricated. Ligules glabrous at the apex. Pappus with very slender rays, all of which are arranged in a single row.—Best known by its diminutive achenia.

2. *Aurella.* Mode of propagation by rosettes. Herb glaucous or glandulose or green. Phyllaries numerous, arranged in many contiguous series. Achenia comparatively large, ribbed, truncate at the apex. Pappus rigid, its rays arranged in two obscure rows, longer and shorter intermixed.—Alpine plants, commonly with large showy flowers, and contiguous anthelæ (*i. e.* leaves passing gradually upwards into bracts without any sudden transition). A well-bounded series, although the lowest forms of the *Villosi* resemble *Pilosella,* and *H. alpinum* with its allies approach *Pulmonarea* (*H. nigrescens* belonging decidedly to *Pulmonarea*).

3. *Pulmonarea.* Mode of propagation by rosettes. Radical leaves persistent, primordial rounded. Phyllaries imbricated irregularly, outer considerably shortest. Achenia striated, usually shorter than those of the *Aurellæ,* but considerably larger than those of the *Pilosellæ.* Pappus rigid, its rays arranged in two obscure rows.—Typically mountainous and alpestral plants, but many common species descend also into the plains. Anthelæ mostly separate. This is the central series, and ap-

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* *Erratum:* page 51, line 3, for "*media* of situation," read "*factors* of situation."

proaches closely all the others, except *Pilosella.* The alpine species, with large heads of flowers, are frequently difficult to distinguish from *Aurellæ,* especially when the primordial leaves are rounded; and when the stem is leafy, they resemble *Accipitrinæ. H. tridentatum* and its allies amongst the *Accipitrinæ* furnish Aphyllopodous *Pulmonareæ.*

4. *Accipitrina.* Mode of propagation by closed buds. Stems rigid, always leafy: lower leaves fading before the upper (which are always sessile). Involucre contiguous, commonly distinctly many-rowed, with spirally arranged phyllaries. Achenia middle-sized, truncate (not attenuate) above, with the rays of the pappus unequal.—Commonly tall, leafy, late-flowering species, with contiguous anthelæ. The older authors (as "Hieracia fruticosa"), have already distinguished this series. The differences between phyllopodous and aphyllopodous stems, although essential characters, are sometimes deceptive in practice, as the leaves frequently in the *Tridentati,* and occasionally also even in *H. umbellatum* itself, are crowded round the base of the stem.

Whilst accepting these subdivisions as the result of the labours of a master of botanical science, and without in any way wishing to hint unfavourable criticism respecting them, I would yet suggest, that of our British *Hieracia* at least, seeing that the line of demarcation between *Aurella* and *Pulmonarea* is so much more slender than that which separates the two groups when united together from *Pilosella* and *Accipitrina,* and the latter series from each other, a threefold classification (like that, for instance, adopted in the two last editions of the 'British Flora') is the most natural and easiest for a beginner to understand. Of the species described by Fries, only four, which are indigenous to this country (viz. *pilosum, cerinthoides, Iricum,* and *alpinum*), belong to his second subdivision. Of these we all know that *H. alpinum,* as stated above, often very closely resembles *H. nigrescens* (and its intimate ally, *H. Chrysanthum,* which equals *H. atratum plus H. rupestre* of British authors);* and indeed it is placed by the side of it amongst the *Vulgati,* by Fries, in his synopsis of Scandinavian *Hieracia* in the second volume of the 'Summa Vegetabilium' (published the year after the 'Symbolæ'). And assuredly, between *pilosum, cerinthoides,* and *anglicum* (the latter arranged in the monograph in the next place to *pallidum,* in the midst of the *Pulmonareæ*), which together make up the plant usually called *H. Lawsoni* in Britain, there are no specific limits to be found.

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* *Vide* Hooker and Arnott's 'British Flora,' seventh edition, page 220.

On Popular Names of Plants.—SPRAT *or* SPROT, *the Scottish Name of* Juncus lamprocarpus.

Dr. Johnstone, in 'Botany of the Eastern Borders,' says this name is probably derived from the German *spröde,* brittle. A more probable etymon is A.S. *spreot,* Ger. *spriet,* Swed. *spröt,* Dan. *sprid,* Icelandic *spröte,* which terms signify *pike, spear, sprit* in *bow-sprit,* or something pointed; or from *sprytlan, to sprout or spring;* or from *spura,* a *spur,* hence *spear.* These are like the Doctor's *etymons,*—conjectural and unsatisfactory. They agree in sound with *Sprat* or *Sprot,* but they mean very different things. They are, however, preferable to *spröde,* brittle, inasmuch as the plant is not at all brittle, but rather tenacious, for in Scotland it used to be platted or twisted into backbands, traces, and other horse and ox drawing-gear. The suggested etymologies are better, because they characterize the mode of growth or the sharpness of the points of most species of this genus. The etymon is to be found in the Greek language. The Greek word σπαρτη means *a twisted cord, a line, lace,* etc. The term σπαρτος, which is applied to several plants, both herbaceous and ligneous or subligneous, from which ropes, cords, or ligatures of various kinds are or may be manufactured, is from σπειρω, *I sow,* hence σπειραω, *I wind up* or *roll.* The Latin verb *sero* has also two distinct senses,—first, *I sow,* second, *I knit, plat,* or *join:* hence Vossius learnedly observes, *a* σπειρω, *pro sero est,* σπαρτον, *pro eo unde aliquid sit ad nectandum ligandumque,* "anything employed for combining or uniting." This is the property of all sorts of ligatures, whether cords made by twisting several fibres or strands together, or strips of leather or cloth, or parts of plants or entire plants. Varro states (Gell. Noctes Atticæ) "that the cord, rope, or line did not receive its designation from the vegetable which yielded it, but rather that *it* gave name to the various plants which produced cordage of any kind. Hence the name *Spartium* was given to shrubs, the slender pliant twigs of which were employed to bind. Hence also we have two terms for one of our genera of plants, viz. *Spartium*, or *σπαρτον*, from *σπειρειν*, to sow, because it is self-sown, and *Genista*, from *gignor*, *genitus*, self-produced, as twigs usually are. *Spartium junceum* yields a fibre which is, like flax, capable of being manufactured into cloth. Captain Stevens, in his dictionary of the Spanish language, informs us that *gramen sparteum* is a soft rushy shrub, common in Italy and Spain, in which latter country they make ropes, mats, and baskets of it, and many other things. From *sparteum*, or *spartium*, or *σπαρτον*, the transition to *sprat* or *sprot* is obvious: the terms have the same signification, viz. a binding material. The earliest sorts of cordage were made of plants; the plants from which bands were made received the names of the articles which were produced from them. This is further evident from *juncus*, rush, from *jungo*, I join; *junctus*, or *junctum*, the thing joined or twisted, and *σπαρτος*, the thing platted, etc.

Notes of a Day's Botanizing about Tring, Herts, June 29, 1855.

(From a Correspondent.)

On the last Friday in June,—an unlucky day in popular belief, and especially so reckoned among seafaring people,—we (there were two) left London by the Euston-square terminus (station) of the London and North-western Railway at eight o'clock, and reached Tring about ten o'clock. The train was not a fast one. Though, like many of our countrymen, disposed to grumble most when there is the least cause, we could not, and cannot now, help remarking, that the present mode of travelling, even by a slow train, is very much superior to the travelling of former days, and especially for botanical objects. We were able to accomplish in *one* day what twenty years ago would have occupied *three*, and at a cost of a few shillings, say seven or eight, what at that not very remote period would have cost us five times this sum. In fine, we breakfasted in London, travelled about forty miles down, botanized eight hours, and returned home to dinner. Our whole expenditure, exclusive of our railway fare, was eightpence for a pot of beer and a cigar. We state these small matters minutely, in order to induce the fraternity to avail themselves of the facilities which quick and cheap travelling to all parts of the country offer for the promotion of botanical knowledge. And something still better than knowledge may be secured, viz. fresh air, healthy exercise, enlargement of the understanding, cheerfulness of mind, and many other desiderata *quæ nunc præscribere longum est.*

We left the railway at Tring station, about two miles to the left of that ancient town, which we walked through. Friday was market-day, an auspicious day for seeing some of the peculiarities of rustic life. These we did not neglect to observe, though we cannot afford room to specify them here. Beyond Tring we diverged from the Wendover and Aylesbury road, and went through some fields, and entered the Beech-woods which crown the summits of the hills between Wendover and Tring. Beech-woods abound on all the hills in this part of Herts and Bucks. Our object was to collect a few specimens of the *Pyrola* which grows there, and which was noticed by Mr. Pamplin above thirty years ago, as is recorded in the 'New Botanical Guide.' The *Pyrola* grows there still; and this, its ancient locality, will in all probability be undisturbed for many ages yet to come. It is not very plentiful even here, so far as our observation extended. There were in these woods a few interesting plants, and only a few. The cornfields yielded but a very scanty harvest to the botanist; we hope the farmers will be better satisfied with their productiveness. We do not know if this is attributable to the extraordinary lateness of the season or to some other cause; but certainly we never saw such a scarcity of plants peculiar to chalk-soils in any other cretaceous district. Our list of plants would be more respectable if it was confined to what we expected to see and did not see. The species collected were very few. The ground under the trees in all the woods, except the steep hangers, was covered with *Asperula odorata:* it surely does not grow anywhere in greater abundance. Finer specimens were never seen, in all stages, flowering and in fruit. We would recommend the herbalists who collect plants for the manufacturers of perfumes to collect the Woodruff in the woods about Tring: several hundreds of loads, each as large as a man can carry, will never be missed here. We did not notice *Paris quadrifolia,* which does grow in Beech-woods about Hemel Hempstead; but we noticed plenty of *Mercurialis perennis,* which is associated with the *Paris* in a wood near Boxmoor. The *Orchids* were also very scarce. *Neottia Nidus-avis* was the only scarce one visible. *Orchis maculata* was partly in flower; and *O. conopsea* was in the same state. *Cephalanthera grandiflora* grew on the hangers and was fine, but not nearly so plentiful as we have noticed it about Dorking and Shere. *Campanula Trachelium* grew here and there, but it had not then flowered. We came upon a large patch of *Allium ursinum,* and another of *Adoxa moschatellina.* The downs produced a few straggling plants of *Hippocrepis comosa,* and plenty of *Asperula Cynanchica,* with both white and pink flowers; but not a single specimen of *Phyteuma orbiculare* nor of *Campanula glomerata* was as yet in sight. We forgot to mention *Hordeum sylvaticum,* which we *did* see in the woods. The banks abounded with a cream-coloured variety of *Helianthemum vulgare,* and with the blue, pink, and white varieties of *Polygala vulgaris;* but here the *Bee Orchis* and the *Fly* never once condescended to appear and cheer our drooping spirits. The common plant of the cornfields was *Scandix Pecten-veneris,* which was very plentiful both in flower and fruit. We made one botanical remark, which is not without interest, viz. that we had never before nor in any other place seen the common Hawthorn and the Elder blossoming together. In and about London the Hawthorn was barely in full flower on the first of June, and the Elder began to show its flowers nearly at its usual period of flowering, Midsummer-day; yet these two plants were not in flower together in London. Here the flowers of the Hawthorn were soon over, for the bright sunny days and the cool east winds are not favourable to the permanence of blossoms. A week at least ere the Elder flowers began to open, all the blossom on the Hawthorn had disappeared. But at Tring the Hawthorn was in a different state: here we saw it on elevated and bleak situations where its period of flowering had been retarded to St. Barnaby's Day, when the days are at the longest; here we observed it with the Elder, both in full flower, a rare fact and worth recording.

We do not wish it to be understood that we were disappointed in the neighbourhood of Tring as the sphere of a botanical ramble; but even if our botanical hopes were not fully realized, our love of the picturesque was abundantly satisfied by the scenery of this neighbourhood. From one of the lofty eminences about half-way between Tring and Wendover, looking to the northwest over the vale of Aylesbury, and to the west over the domain of Ashridge, we thought that we had never seen more lovely prospects, nearly as varied as those in the neighbourhood of far-famed Box Hill, but much more extensive. For example, the rich Vale of Aylesbury, with its town, villages, rich meadows, and cornfields; also the towns of Leighton, Tring, Ivinghoe, etc., with the beautifully crowned heights of the once ducal domain of Bridgewater; the canals, reservoirs, and last, not least, the railways, formed a picture not easily forgotten.

Note by the Editors of the Phytologist.

We beg leave to ask our readers a question or two on the subject-matter of our obliging correspondent's communication. 1st. Are there any readers of the 'Phytologist' in or near Tring, or Wendover, or Aylesbury, or Ivinghoe, or Leighton Buzzard? or rather, are there any botanists in these ancient towns or in the lovely villages which our contributor saw from the top of the Chiltern Hills? and if this be answered in the affirmative, as we trust it may be, we believe that they are readers of the 'Phytologist,' and will, for the credit of their country, vindicate its botanical renown. We ask again, if our correspondent is to blame for not seeing chalk-plants, or is the lateness of the season to blame? Does the Bee Orchis display its loveliness before midsummer in ordinary seasons in Buckinghamshire? Does not *Habenaria chlorantha* grow in the woods which *he* visited? Is *Paris quadrifolia* a scarce plant there? Do not the cornfields yield *Bupleurum rotundifolium, Ajuga chamæpitys, Linaria minor,* etc., as well as crops of wheat and rye? Do not the downs produce *Gentiana Amarella, Spiranthes autumnalis, Campanula glomerata,* and similar chalk-plants? We want information on these and similar subjects; and as only resident botanists can supply us with this, we apply to them, and we will thank them cordially for whatever intelligence they can conveniently supply: we will make use of it for the general benefit of our readers, and for the promotion of science in general.

A Catalogue of certain Plants growing wild, chiefly in the environs of Settle, *in Yorkshire, observed by* W. Curtis, *in a Six Weeks' Botanical Excursion from London, made at the request of* J. C. Lettsom, M.D., F.R.S., *in the months of July and August,* 1782.

(*Continued from page* 87.)

43. *Allium arenarium? Sand Garlic.*

Allium sylvestre amphicarpon foliis porraceis, floribus et nucleis purpureis. *Raii Syn. p.* 370.

44. *Allium oleraceum? Herbaceous Garlic.*

Allium sylvestre bicorne flore ex herbaceo albicante cum triplici in singulis petalis stria atro-purpurea. *Raii Syn. p.* 370.

These two species of Garlic being out of flower when discovered, I dare not be positive about them. The first grew sparingly in a pasture at the back of the stables belonging to the Dun Horse, Ingleton, kept by Mr. Wariner, at whose house every traveller finds himself at home. The latter grew also sparingly among rocks, in the Girling Trough, near Conistone, Kilnsay. [Mr. Tatham informed the writer of these notes that one or more of these Garlic plants abounded on the upland pastures between the town of Settle and Attermire Crags, but that they were so much liked by the sheep that a specimen was rarely attainable.]

45. *Anthericum ossifragum. Lancashire Asphodel.*

Phalangium anglicum palustre Iridis folio. *Raii Syn. p.* 375.

This is extremely common in all bogs and moorish grounds, which in July and August are beautifully decorated with its blossoms.

46. *Convallaria Polygonatum. Sweet Solomon's Seal.*

Polygonatum floribus ex singularibus pediculis. *Raii Syn. p.* 263.

In the rocky part of Sykes Wood, near Ingleton, sparingly. [Gerarde informs us, p. 905, that the Solomon's Seal with broad leaves grows in Clapdale Woods, three miles from a village called Settle, in Yorkshire. Mr. Tatham informed us that it grew at the base of certain rocks two or three miles to the north of Settle, in the direction of Stainforth.]

47. *Juncus sylvaticus. Great Hairy Wood Rush.*

Gramen nemorosum hirsutum latifolium maximum. *Raii Syn. p.* 416.

In Whitfell Gell, near Askrig, plentifully: also near the bottom of a mountain called the Rye-loaf, near Settle, where no wood was growing, but probably had grown.

48. *Triglochin palustre. Arrow-headed Grass.*

Common in marshy places.

49. *Rumex digynus. Hill Mountain Sorrel. Oxyria reniformis.*
Acetosa rotundifolia repens Eboracensis, folio in medio deliquium patiente. *Raii Syn. p.* 143.

Found sparingly in the spot mentioned by Ray, close by Buckbarrow Well, in Longsledale, on the edge of a deep rivulet abounding in waterfalls. The *Rumex scutatus* of Linnæus is very common in the gardens in Yorkshire. I have sometimes seen it in situations which have tempted me to think it an indigenous plant. [Mr. Tatham, whose authority is unquestioned, told me that *Rumex scutatus* is naturalized about Settle. Will Mr. Tatham send a specimen, with particulars of its locality, etc.?]

50. *Colchicum autumnale. Meadow Saffron.*
Colchicum commune. *Raii Syn. p.* 373.

Not uncommon in the meadows in Yorkshire. I found it in a pasture close by Milscur Lush, near Kilnsay. Mr. William Fothergill, of Carr End, informed me, that it grew plentifully in a meadow near West Witton, Wensleydale.

51. *Alisma ranunculoides. Small Water Plantain.*
Plantago aquatica minor. *Raii Syn. p.* 357.

In Giggleswick Tarn plentifully.

52. *Epilobium angustifolium. Rose-bay Willow-herb.*
Lysimachia speciosa quibusdam Onagra dicta siliquosa. *Raii Syn. p.* 310.

In Grass Wood, near Kilnsay, among the rocks, plentifully in one particular spot.

53. *Epilobium alpinum. Alpine Willow-herb.*
Lysimachia siliquosa glabra minor latifolia. *Raii. Syn. p.* 311.

On the moist rocks about Buckbarrow Well.

54. *Vaccinium Myrtillus. Bleaberry.*
Vitis idæa angulosa. *Raii Syn. p.* 457.

Common on all the heaths, rocks, and mountains.

55. *Vaccinium Vitis-idæa. Red Bilberry.*
Vitis idæa sempervirens fructu rubro. *Raii Syn. p.* 457.

Not uncommon on heaths, yet seldom found in blossom.

56. *Vaccinium Oxycoccos. Cranberry.*
Oxycoccus Vaccinia palustria. *Raii Syn. p.* 267.

Frequent on the boggy mosses about Settle, Kendal, and elsewhere in the North. [We can state from experience that in some seasons this plant is very scarce.]

57. *Polygonum viviparum. Viviparous Bistort.*
Bistorta minor. *Raii Syn. p.* 147.

On the edge of Semer Water, an extensive tarn at Carr End, Wensleydale. [About Faizor, Mr. Tatham.]

58. *Paris quadrifolia. Herb Paris, or True-love.*
Herba Paris. *Raii Syn. p.* 264.

In Kelcoe Wood, near Settle, and most of the woods thereabout.

59. *Pyrola rotundifolia. Common Wintergreen.*

In the enchanting woods of Hackfall, near Grewelthorpe, in tolerable plenty. Sparingly in Raydale Wood, near Carr End, Wensleydale; also in Tenant's Wood, near Kilnsay.

60. *Saxifraga stellaris. Hairy Kidneywort.*
Geum palustre minus foliis oblongis crenatis. *Raii Syn. p.* 354.

Not uncommon on the moist rocks and boggy ground about Buckbarrow Well, Longsledale; a few plants in blossom, but mostly in seed.

61. *Saxifraga oppositifolia. Purple Saxifrage.*
Saxifraga alpina ericoides, flore cæruleo. *Raii Syn. p.* 353.

On the craggy rocks of Ingleborough and Pennigent plentifully, in particular spots. [This plant we found in abundance on Pennighent, but so sparingly on Ingleborough that the gentleman who accompanied me to that mountain considered our observing it there a notable discovery.]

62. *Saxifraga autumnalis.—S. aizoides. Autumnal Saxifrage.*
Saxifraga alpina angustifolia, flore luteo guttato. *Raii Syn. p.* 353.

On the moist rocks of Ingleborough sparingly. [We gathered it on a moist spot in tolerable abundance.] In the greatest plenty in Longsledale; also in Whitfell Gill, near Askrig, most beautifully in blossom.

63. *Saxifraga hypnoides. Trifid Saxifrage—Ladies' Cushion.*
Saxifraga muscosa trifido folio. *Raii Syn. p.* 354.

On the mountains about Settle plentifully, and most of the mountains in the North.

64. *Arenaria verna. Mountain Sandwort or Chickweed.*
Alsine pusilla pulchro flore folio tenuissimo nostras. *Raii Syn. p.* 351.

Generally with the last-mentioned plant. I always found it a sure indication of elevated ground. [This, with *Thlaspi alpestre*, abounded about the calamine pits near Settle.]

65. *Sedum anglicum. English Stonecrop.*

Sedum minimum non acre flore albo. *Raii Syn. p.* 271.

On some rocks in Longsledale, on the left-hand side going down the vale; observed it on a few rocks only.

66. *Sedum villosum. Hairy Stonecrop.*

Sedum purpureum pratense. *Raii Syn. p.* 270.

On the side of Ingleborough sparingly, in the bogs where the springs originate; but in much greater plenty in similar situations about Carr End, Wensleydale. [At Kelwithmoss, not far from Faizor.]

67. *Spergula nodosa. Knotted Spurrey.*

Alsine palustris foliis tenuissimis, seu Saxifraga palustris anglica. *Raii Syn. p.* 350.

Common on the bogs about Settle, and similar situations in the North.

68. *Prunus Padus. Bird Cherry.*

Cerasus avium nigra et racemosa. *Raii Syn. p.* 463.

In the woods about Ingleborough, and elsewhere in the North, plentifully.

69. *Cratægus Aria. White Beam-tree.*

Mespilus alni folio subtus incano, Aria Theophrasti dicta. *Raii Syn. p.* 433.

[Nos. 45, 47, 48, 54, 55, 56, 61, 62, 63, 64, 67, 68, 69, were collected about Settle, in 1852.]

(*To be continued.*)

Reviews.

The Transactions of the Malvern Naturalists' Field Club, Worcester. By T. M. Allgood.

We have much pleasure in giving publicity to this interesting report, and hope its perusal will be as gratifying to our readers as it has been to ourselves. This part, the first which has appeared, opens with an address to the members by the Rev. W. S. Symonds, F.G.S., President.

In this portion, the President recapitulates the substance of what occurred at the meetings held previous to the closing of the field business in October, 1854.

The objects of this Club are multifarious—botanical, geological, entomological, etc. The meetings are held monthly, from March to October inclusive; and we may judge from the anniversary address, that they are reunions of great attraction. We beg to present our readers with the following extract:—

> I am indebted to Mr. Dowdeswell, of Pull Court, for calling my attention to a peat deposit containing many freshwater shells, with remains of the Hazel and Birch, from a depth of twelve or fourteen feet below the surface. . . . Several marine plants, and amongst them the salt Marsh Rush (*Scirpus maritimus*) still grows here. . . . Great excitement was caused by Mr. Lees finding two of the rarest plants in Worcestershire, the blue March Vetchling (*Lathyrus palustris*), and the single-flowered marsh thistle (*Cnicus pratensis*). Ours was not the only excitement caused by these rare wild flowers. It appears that no sooner had the account of them appeared in the report of the 'Worcester Herald,' than four botanists of the "faithful city" posted in all haste to Upton-on-Severn, and, notwithstanding a pouring rain, walked the Langdon Marshes all day in vain. The *Lathyrus* was chary of her favours, and their search was unrewarded. Not long afterwards there was held at Malvern a gallant flower-show: rare hot-house plants, and brave specimens of the most showy flowers of the parterre filled the marquee; while in a remote corner, among a collection of wild flowers, and placed in water contained in a common soda-water bottle, was a small metallic-looking pea! I doubt much if more attention was excited by any one flower of that brilliant collection than was by the *Lathyrus palustris* of the Langdon Marsh.

The paper by Edwin Lees, Esq., on the plants that more particularly flourish on the Silurian limestones, is more within the scope of our periodical than the geological paper by Professor Phillips. From the former we will give a few extracts.

> There are many phænogamic plants that indicate *Limestone* in the localities where they grow, or they flourish most luxuriantly on a calcareous soil, so that an experienced botanist recognizes them and knows the nature of the ground he is on from this very circumstance. The Traveller's Joy (*Clematis Vitalba*), the Lady's Finger (*Anthyllis Vulneraria*), Saintfoin (*Onobrychis sativa*), Yellow-wort (*Chlora perfoliata*), Autumnal Gentian (*Gentiana Amarella*), Wild Marjoram (*Origanum vulgare*), and the Wayfaring Tree (*Viburnum Lantana*), all abundant in this district, are familiar instances, and many others might be named.

Our author, while botanizing in North Wales, on the Great Orme's Head, Carnarvonshire, tells us,—

> I one day wandered to an isolated hill called *Craig Diganwy*, where to my great surprise tufts of Foxglove appeared in lofty splendour, as they do on our Malvern Hills, where they keep clear of the limestone. I could scarcely believe my eyes, and almost fancied I had got back to Malvern. On examining the ground I soon discovered that I had unconsciously wandered to a mass of trap-rock; there only did the *Digitalis* present itself; not a single specimen could I find on the limestone, while the limestone plants, viz. the Gentian, the Rue, the Marjoram, and the Dropwort, as cautiously *kept out of the trap*. . . . The Silurian limestone ridges, west of the Malvern syenite, nourish, among the more common products of a calcareous soil, *Pimpinella magna*, *Cnicus eriophorus*, *Viola hirta*, *Linaria minor*, *Orchis pyramidalis* and *Ophrys apifera*, *Avena pubescens*, *Bromus erectus*, and the local Wood Lyme-grass (*Elymus europæus*); *Anagallis cærulea* also prefers a calcareous soil. . . . The characteristic vegetable aspect of our Silurian woods, after the countless wild Daffodils with which they are crowded in spring, the Snowdrops, the Bluebells, the hairy Violets, and the lurid four-leaved Parises (*Paris quadrifolia*), also very abundant, have in a great degree withered or passed off. Roses and Sweet-briars now rise in bounteous profusion, *R. villosa* and *R. micrantha* especially presenting themselves about the borders of the Wenlock limestone quarries, and the rare *R. sepium* grows at the foot of the hill near Little Malvern. . . . *Rubus suberectus*, *R. villicaulis*, *R. fuscus*, and *R. Bellardi*, as remarkable Brambles easily distinguishable, and the three last, though usually local, flourish here in considerable plenty. The Raspberry occurs rather sparingly.

We can corroborate Mr. Lees' remarks on the influence exercised by geological formations on the distribution of plants. We have seen the remarkable effects of different soils on a very large scale, both in the south and in the north of England. The vegetation of the downs of Surrey, and especially that of the Hog's-back, differs materially from that of the Shanklin sand on the south of this curious ridge, and from that of the Bagshot sand on the north of the same. The Beech woods, the green grassy sward of the downs, together with the numerous Orchids which grow on cretaceous soils, present a remarkable contrast to the Heaths, the Oaks, and the bog plants of the sandy tracts. The north-west of Yorkshire exhibits similar diversities. At a great distance the limestone soils may be distinguished from the gritty soils which produce the common Ling, the Crowberry, Cranberry, Cloudberry, etc. Patches of the latter-named formation crop out here and there, and are immediately distinguished by their wet, oozy, peaty composition, as well as by their general sterility and the paucity of plants which they can support. The vegetation of the limestone is succulent and nutritious, as well as close and varied. That of the grit is worthless and almost uniform: Heath, straggling plants of Tormentil, Milkwort, and Moor grass are almost the only produce, with here and there a few Cranberries, which are disappearing in many of these extensive moors.

That certain plants prefer peculiar soils is a fact, the cause of which is one of the *arcana* of Nature. The Scotch Pine, the Foxglove, and the Heaths, prefer a gritty or sandy or granitic soil. The Beech, the Traveller's Joy, and many Orchids are limited to limestone or to chalky soils. The Chickweed, the Nettle, and various plants of a cosmopolitan character, abound wherever man fixes his abode. Can our geologists, or mineralogists, or chemists, explain the cause of this? We trow not. They can point out the facts. We can do this. But we admit that the causes are latent. We cannot tell why the Shepherd's-purse abounds about the haunts of men; nor why the beautiful Bee Orchis blushes unseen, and exposes its beauties where there are few to admire them. Besides these inexplicabilities in nature, viz. the predominance of particular plants on particular soils and situations, there are others still more striking, because not of so general a kind. There are plants, as Mr. Lees remarks, that are peculiarly isolated in various parts. *Oxytropis campestris* is an example, confined, we believe, to a single rock on one of the Clova Mountains. *Actæa spicata* is limited to one part of Yorkshire, or to a small tract in that part of England. *Lloydia serotina* is found only on one or two rocks in Carnarvonshire. *Cotoneaster vulgaris* is limited to the Orme's Head. *Potentilla rupestris* to rocks on Craig Breidden, Montgomeryshire; *Helianthemum Breweri* to Anglesea; "and *Vicia lævigata* has been found nowhere else in the world but on the beach at Weymouth."

Rock Lichens, as Mr. Lees further remarks, appear to be affected by the same law of distribution. Some of these humble productions are produced only on granitic rocks, others on the oolite. Some of the larger species of this family prefer certain trees, appearing to thrive better on one kind of tree than on another. Can our chemical mineralogists aid us here? Are the mineral constituents of the Lichens similar to those of the rocks and stones on which they grow? They, like other plants, exercise their assimilating properties on the substances with which they are in contact. Can geologists tell us to what extent these properties are common? We can easily believe that many Lichens are about as ancient as the objects on which they grow, and therefore perhaps nearly *twice as ancient* as any *Yew* or *Baobab*, which we have been taught to regard as the most common examples of longevity in the vegetable kingdom. We will not contest the claims of the Lichen to greater antiquity than these patriarchs among the trees of the field, but we demur to the claim that they were first created: (Mr. Lees hints something of the kind.) We do not admit the order of detail in the creation, simply for the reason that there is no proof but the analogical one derived from the operations of nature which are going on before our eyes. We admit the latter, because "seeing is believing." We do not deny the former; we only maintain that it is *not proven*, as a Scotch jury cautiously decides when the evidence is not quite convincing.

The paper on the geology of the Malvern Hills we recommend both to our botanical and geological readers; but we have no room for an outline of its contents. In fine, the example set by our West of England friends is worthy of imitation, and we wish to recommend its adoption to our friends nearer home (London). And we have very great pleasure in announcing to our readers, that the Rev. Mr. Webb, author of the 'Hertfordshire Flora,' invites all naturalists to join him in a series of rambles in his neighbourhood; the time and place of meeting will be communicated on application at our office, 45, Frith-street, London. In reference to this gentleman's kind proposal, we have only to add that botany, although the principal, is not the sole object of these field meetings, to be held in Hertfordshire and Essex, but that naturalists of all departments are invited to accompany Mr. Webb. We hope they will avail themselves of Mr. Webb's invitation. His intimate knowledge of the counties where he proposes to hold these reunions renders him a most efficient leader.

BOTANICAL NOTES, NOTICES, AND QUERIES.

LINNÆAN SOCIETY.

On *Hypericum anglicum*, by Charles C. Babington, M.A., F.R.S.—In this paper, the author states that he is disposed to look upon the *Hypericum* found by Dr. Balfour on the banks of the Glanmire river, Ireland, as identical with *H. hircinum*. He also mentioned that Mr. Isaac Carrol, of Cork, looked upon the plant as having been introduced in the locality mentioned. Mr. B. is disposed to think that the true *H. anglicum* of Bertoloni still exists in Britain: a specimen agreeing with it in character was found by Mr. T. Polwhele, about Falmouth harbour, Cornwall; and specimens of the same kind are in Dr. Balfour's herbarium, gathered by him on the banks of the Crinan Canal, in Galway, Ireland, and near Culross. *H. anglicum* is represented in 'English Botany,' t. 1225, under the name of *H. Androsæmum*. It is distinguished chiefly by its much branched stem, two-winged peduncles, subcordate-ovate rather acute leaves, few-flowered cymes, ovate, rather acute and unequal sepals, and by the styles exceeding the stamens.

List of Plants not in the London Catalogue sent out to the Members of Bot. Soc. Lond. 1855.—The species worthy of notice which the B. S. L. has this year received are few, though some of them are highly interesting. *Symphytum tauricum* is sent by Mr. T. Kirk, as naturalized at Allesley, Warwickshire. *Salix acutifolia*, Willd. (see 'Phytologist' for 1854, page 33): Mr. Baker sends a plentiful supply of the leaves of this interesting addition to the British Flora. Mr. Baker also sends a *Bromus* he considers as *B. Billiotti*, Schultz, from Cleveland, Yorkshire: it seems a slight variety of *B. commutatus*, differing in its separation of the florets when in fruit. But the plant which will be most prized is the long lost *Hierochloe borealis:* for this the society is indebted to Mr. Notcutt, who received the species from Mr. Dick, its discoverer, near Thurso. Mr. Dick has known the plant in this station for twenty years, but was not aware that it had been lost in the original station found by Mr. G. Don. Flowering early in the year, it is no wonder that it has passed unnoticed by botanists, who make excursions in autumn, when nothing but the leaves of the plant are visible. It may be expected to occur in other places, if looked for in the end of May or beginning of June. J. T. Syme.

Note on *Fumaria agraria*, Lag., noticed in description of British Plants, under *Fumaria*.—A correspondent has obligingly informed us that the *Fumaria agraria* of British botanists is only a form of *F. capreolata*. When the *Fumarias* were described we did not know this, never having seen the Cumbrian plant noticed in 'Botanical Gazette,' vol. ii. p. 54, and the description supplied to the readers of the 'Phytologist' is condensed from *Grenier and Godron, Flore de France*. Since that time, however, the *Fumaria* in question has appeared at Wandsworth (the one described in the supplement to the 'Phytologist;' we do not know the Westmoreland plant, and only took for granted that it was what its name declared it to be), it has been compared with *Grenier's* description and with *Reichenbach's* figure, and it certainly agrees with the *agraria* of the former and with the *major* of the latter in every respect (*F. major*, Reich., is *F. agraria*, Lag.). That it is specifically distinct from *F. capreolata* we will not affirm; the only important distinction is in the fruit. But if the Ambleside plant agrees with the description given from *Grenier*, we have no hesitation in saying that it is *F. agraria*, Lag. If we meet with any more of these forms at Wandsworth, we shall preserve them. There is a bit of the plant in the Linnæan Society's herbarium.

Trifolium repens, metamorphosed state of.—I beg to send a curious and anomalous growth of *Trifolium repens*, in which the pedicels are greatly lengthened, and the calyx-segments converted into leaves. I apprehend that this extraordinary growth of White Clover is identical with the one described by Professor W. Hinckes, at the twenty-second meeting of the British Association. The enclosed specimen I found about three years ago. The plant grew in a hedge-bank, but I have not noticed any such unusual growth since, in that or any other locality. J. GIFFORD.

[We are much obliged to our correspondent, and beg to inform him that in the 'Botanical Gazette' there is an elaborate paper on this state of the plant, by Mr. Robert Austen, with diagrams of the metamorphosed parts. We believe his apprehension is a correct one, though we have not seen Mr. Hinckes' paper. But we have seen the White Clover in various stages of metamorphosis, such as are described by Mr. Austen and by our obliging correspondent.]

Botrychium Lunaria.—A few days ago I was gratified to find this species in a pasture at Weelsby, not more than a mile from Great Grimsby, and about a mile and a half from Cleethorpes. I counted more than twenty plants, all growing within a small space near the footpath leading from Grimsby to Clee; and I dare say that, if I had prolonged my search, I might have found it in other parts of the field. I am not aware that this interesting little plant has hitherto been found in many localities in Lincolnshire, though it is possibly much more widely dispersed, not only in this county, but also in others, than is generally supposed. R. W. R.
Humberstone.

Epipogium aphyllum.—On the 29th of July, 1854, I received a letter from Mrs. Anderton Smith, enclosing a specimen of what we now know to be the *Epipogium*, requesting me to name it for her. It was found in a foot-path at the bottom of a very steep bank, close to the Sefey-brook at Tedstone Delamere, near Bromyard. The banks are clothed with oaks, surrounded by ferns and briars, and are very shady. No other specimen had been found up to the 10th of August. I being unable to reduce the plant to any British genus, enclosed it to Mr. H. C. Watson, who returned it to me named. I see that Mr. Lees is reported to have presented a specimen to the Linnean Society, from which I conclude that other specimens have been found. W. R. CROTCH.
Stoke Court, Taunton.

Glechoma micranthum, Bonng.—In the 'Flora Excursoria,' page 316, Reichenbach describes, under *Glechoma hederacea*, a variety *minor* (*G. micranthum*, Bonning), "Sæpe colorata, rufescens, non raro ad calyces et foliorum ortum pubescens, stolones longissimi." Last summer I noticed, growing upon a dry sandy hedgebank by the roadside between the villages of Carlton Miniott and Busby Stoop, near Thirsk, a form of Ground Ivy thus characterized, with all its parts considerably smaller than in the ordinary state, and with its flowers, instead of a deep violet, blue, resembling in colour those of *Lamium purpureum*. In this plant also, the teeth of the calyx, though bearing, as in the form under which *G. hederacea* mostly shows itself in this country, a proportion of about one-third to the length of the tube, are broader and blunter in outline: so that it is probable that we should consider it as the *minimum* in the scale of a range of variations of a single species of which the *maxima* are represented by *G. heterophyllum*, Ofritz, and *G. hirsuta* of Waldstein and Kitaibel: for the distinctions (which reside principally in the size and pubescence of their various parts, the shape and proportional length to the tube of the calyx-teeth), which have been relied upon by authors to separate these plants specifically, are clearly liable to a considerable degree of modification by the influence of differences in situation. In Turner and Dillwyn's 'Botanist's Guide,' p. 495, I observe that a "var. flore carneo" of *G. hederacea* is mentioned as having been found by Dillenius, near Eynsham Abbey, in Oxfordshire; but should suppose the usual change of blue flowers to red, of which, amongst British plants, *Ajuga reptans*, *Prunella vulgaris*, and *Polygala vulgaris* afford more familiar examples, to be an unusual occurrence in this species. J. G. BAKER, *Thirsk*.

Is anything known of Mr. Jacob Rayer? It is to him that we are indebted for the first discovery of several of our rarest Kent plants—*Althæa hirsuta*, *Salvia pratensis*, etc. Some particulars, of a name which comes before us so frequently in the early volumes of Sir J. E. Smith's English Botany, would have a considerable degree of interest. The writer was induced to make the inquiry in consequence of having lately met with a letter of his, dated "Bolt Court, 1st July, 1795," and addressed "Mr. Wheeler," in which Jacob Rayer laments his inability to accompany a botanizing party "to Rydate and the bogs," etc. etc. *Quære*, where is this Rydate? A. W., *Kennington*.

Will any of your correspondents favour the writer with their experience as to the variations exhibited by the common White Water-lily, *Nymphæa alba?* German writers have made a dozen bad species from trifling varieties of this widely-diffused plant; but in England, as far as the writer's observations have gone, the plant is not subject to much variation. J. N.

Is there anything known about Mr. George Bowles, the discoverer of several rare British plants,—for example, *Lythrum hyssopifolium*, near Dorchester; *Impatiens Noli-me-tangere*, in Wales? J. A., *Guildford*.

Misseltoe on the Oak.—"Speaking to Dr. Jenner, the discoverer of vaccination, on the Misseltoe of the Oak, and remarking that I had never seen that plant but on Apple-trees, and sometimes on the Hawthorn and Mountain-ash, he said he had seen one, and only one, on an Oak in the Forest of Dean, in Gloucestershire. Dr. Jenner was, as is well known, an accurate observer and good naturalist. He considered its rarity and uncongenial habitat the cause of its being considered sacred by the Druids." —*Correspondent of Gardeners' Chronicle*. [We wish some obliging reader would tell us if he has seen the Misseltoe on the Oak. We would rather have the testimony of one eye-witness than many hearsays.]

Osage Orange (Maclura aurantiaca).—This tree, or shrub, is recommended by a writer in the 'Gardeners' Chronicle' as a substitute for Whitethorn or *Hawthorn*. A seedsman also advertises seeds of the same. Will any of our correspondents be so obliging as to give us their opinion of the merits of this shrub as a material for hedges?

Geological Relations of Plants.—There are in Great Britain a few plants which grow only in what may be termed limited localities; or, in modern phrase, their type of distribution is very local. Our readers will understand what is meant from an example. *Lloydia serotina* is limited to Wales, to the county of Carnarvon, and to one or two spots in the said county, neither large nor far apart. The plant is not considered as an introduced nor accidental nor straggling species. It has never been observed in any other part of the British Islands than in the one above mentioned. *Actæa spicata* is a local species almost as rare as the Welsh plant, being confined to a few localities in Yorkshire and Westmoreland. *Scheuchzeria palustris* is also a Yorkshire plant, confined to a single station; at least none other is known but the old station at Leckby Carr. The question is, are these and other rare British plants restricted in their distribution or area over which they extend, by geological or atmospherical causes, or by both combined?

Ranunculus gramineus.—We have been informed by our obliging and energetic correspondent, Mr. Baker, that the plant above-named has recently been found by Mr. Etheridge of Bristol, in Lundy Island, in the Bristol Channel. We wish the latter gentleman would be so kind as to send us a specimen, with the history of the re-discovery of this interesting species, so very long believed to have been by mistake entered in our lists of British plants.

Localities of rare Plants.—*Ranunculus confusus*, Gr. and God.: near Sheerness; Gravesend. *Cochlearia anglica, β gemina*, Host., near Sheerness. *Medicago denticulata*, Willd., Southend. *Medicago minima*, Lam., near Sheerness. *Œnanthe silaifolia*, Bieb.: roadside between Sheerness and Queenborough. *Statice occidentalis*, Lloyd, near Sheerness. *Carex stricta*, Good.: abundant near Sandwich and Deal. J. T. SYME.

Communications have been received from

J. A., Guildford; Rev. T. F. Ravenshaw, Ifracombe (two communications); A. W.; D. Galloway; John Tatham; J. G. Baker; Dr. W. L. Lindsay; W. F. Helmsley.

BOOKS RECEIVED FOR REVIEW.

Lawson on Cinchonaceous Glands in Galiaceæ, etc.
The Natural History Review for July.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Some Botanical Notes made during a Tour through a part of Ireland in June and July, 1855, *with occasional Remarks on Scenery, etc., in a Letter to the Editor. By* JOSEPH WOODS, F.L.S.

Dear Sir,—I have done so little in Irish Botany, that I fear you will think the few observations I have made not worth your notice. Such as they are, however, I send them to you, to use or neglect at your own good pleasure.

My first botanical walks were in the neighbourhood of Cork. *Sedum dasyphyllum* still grows on some walls above Sunday's Well, in the neighbourhood of the gaol. *Barbarea præcox* occurs in the same vicinity; and further on, on the Blarney road, *Senecio squalidus* and *Geranium rotundifolium. Euphorbia hiberna* seems to occupy, in the south of Ireland, the place which *E. amygdaloides* does with us. *Lastrea Fœnisecii* is not uncommon in the woods, and sometimes establishes itself on stone walls. On banks nearer the river we find *Linum angustifolium.*

I went in company with Professor Smith to Kinsale, stopping in the way at Blennerhassig, to visit a deep narrow rocky glen, where the Ferns in general are very luxuriant, and which offers the first station for the *Hymenophyllum tunbridgense.* Unfortunately a heavy rain came on just before we reached the wood, and limited our observations. There is no path through the glen, and the rocks approach each other so nearly that there is only room for the brawling brook.

We visited Kinsale in hopes of finding some interest in the promontory called Kinsale Head, but we were disappointed. At its base is a small sandy tract, where however I could find nothing better than *Sagina maritima,* and some boggy ground adjoining was not more productive. The promontory itself is rocky all round, and the immediate shore is hardly anywhere accessible. In almost the only place where we can descend to it we find *Asplenium marinum,* a very frequent Fern on the Irish coast. The Head is somewhat contracted in the middle, forming as it were two joints; and the isthmus is marked by a cavern running through it, and by an old wall above, with towers to defend the further portion; but for what purpose this was built it is difficult to say, since the enclosure contains no natural landing-place. The light-keeper at the lighthouse, a very intelligent man, has made something of a collection of the mineral produce of the promontory, and reckons among them copper, silver, and lead, but nothing is worked there.

A walk near Kinsale afforded specimens of *Asplenium lanceolatum,* which I am told is new to the Irish Flora. Of *Dianthus plumarius,* which has been said to grow there, we saw nothing. *Brassica Napus* seems to find something peculiarly suitable to it in the place, as rocks, walls, and banks are covered with it.

Another excursion took us to Blarney, and to the water establishment at St. Ann's, a very pleasant place, with beautiful grounds for the patients to walk about in. Our chief object was *Pinguicula grandiflora,* which, beginning here, becomes very abundant as we proceed further west. I have gathered specimens on the Apennines, and I believe on the Pyrenees, which I took at first for this species, but was afterwards satisfied that it was a large-flowered variety of *P. vulgaris.* The *P. grandiflora* is, however, a Pyrenean plant. We found in the same spot *P. lusitanica,* and this is by no means rare in Ireland. *Lathræa Squamaria* grows at Blarney, but of course we were too late to see anything of it. In one little pool there we observed *Ranunculus Lingua;* and there are some rarities said to grow in the neighbourhood, which did not come in our way.

The College was not in action when I was at Cork; and not only the students, but almost all the professors, except the medical ones, had left the place. I cannot therefore say much about this "godless college." There is however a very general testimony to the good conduct of the students; and I may venture to maintain that a truly pious Christian may find many opportunities as a professor to encourage the feeling of religion among the students. He may inculcate, both by example and precept, the duty of fearing God and keeping his commandments, and the love and gratitude due to our Saviour. He must not insist on any of the disputed points of a dogmatical religion; and it is this prohibition which calls down the wrath of those who make religion consist in the adoption of certain opinions.

On the 23rd of June I left Cork, taking the railway to Killarney. In the road from Dublin to Mallow, a distance of 145 miles, I was much struck by the level nature of the country we passed through. There were hills sometimes at a little distance, but we were never on them or among them, and I saw no place which excited a wish to stay for a few days, as I had at one time intended. There are no tunnels, and no deep cuttings. At Mallow the ground becomes somewhat more varied, but from Mallow to Killarney it resumes much of the same level character. The hills indeed, at a little distance from the road, are higher and bolder than those between Dublin and Mallow; and at Mill Street, or perhaps better at Shinnagh, the station between Mill Street and Killarney, a botanist might be tempted to delay a little, if he had not the greater attractions of Killarney immediately before him.

I was at Killarney in 1809, and had not been there since. Of course great changes had taken place, of which the railway itself was not the least. There was then one inn at Killarney, and that not a very large one, and none in the neighbourhood. Now there are three in the town: one about a mile north of it (the Victoria); another about as much to the south (the Lake Hotel); both large establishments, accessible from the Lake, and having views over it from which the old inn, and indeed the whole town of Killarney, is quite shut out. There is also an immense railway hotel, two hotels at Mucruss, and another at some distance from the Lake, called the Turk (or Torc) view. I went to the Lake Hotel, which stands close to the Lake, with a view of exquisite beauty from the windows and very pleasant grounds. No position can be better for boating, and for cars it does not matter if the first two or three miles are not very pleasant; but it must be understood that at Killarney, where you are not in a privileged place, you are between two high stone walls, the trees hanging over the road being all the view beyond them. You see nothing at Killarney without paying for it, not even the Lake. Mr. Herbert puts up a notice at Mucruss that his servants are not permitted to *ask* for any money, and in fact I was not asked for any, either there or at Lord Kenmare's park, but the gatekeepers evidently expect it, and are so officious in proffering services which are of no use to you, that you are ashamed not to give them something for that which is really useful, viz. opening the gate. The Irish passion seems to be to lock up everything. I thought at first that this was carried to a ridiculous excess, when I found that the entrance to the hotel was always locked; but I was afterwards induced to think more favourably of this example, since without it the stranger would not be able to walk about the grounds (it was formerly a gentleman's seat) without being pestered by importunities to buy what he does not want, or to accept of services which would only be an encumbrance to him. From what I have said, it will be understood that there are no pleasant varied walks about Killarney, no quiet evening stroll: you come to Killarney to admire, not to enjoy. At Mucruss you may perhaps have more of this than at the other hotels. The road towards Mangerton exhibits some admirable views over the Lake and of the surrounding mountains; and to go along the old Kenmare road and turn off by a footpath which leads to the Mangerton road would probably make a very delightful walk (I did not follow it), of moderate extent; but even here you are met with frequent notices against trespassing in Turk (or Torc) woods, and Turk woods form a forest which covers half the neighbourhood. On this account Glengariff would be a more agreeable place at which to spend ten days or a fortnight than Killarney.

While about these drawbacks to the pleasures of Killarney, I may as well notice the swarms of begging children which pester you wherever you go, and will follow you for miles in spite of anything you can say or do to get rid of them. It is true that they have the pretence of offering you something; the girls have whisky and goat's milk, which you are to drink whether you want it or not. They leave the price entirely to "your honour;" they cannot think of bargaining with a gentleman; and then they will grumble and ask for more, whatever you may give them. The boys will *show* you what you cannot help seeing, or they are ready to guide you to places which you have no desire to visit, or they will give you names which you forget the next minute, and which are probably correct only as to the principal and best known objects. In England, when I have been watched by a set of boys, I have found some among them who would really observe what plant I was searching for, and exert themselves to get specimens. There is nothing of this among the Killarney boys. If they found I was collecting flowers, they would gather bits of heath or of honeysuckle, both equally common, and assure me it was very pretty, and perhaps tell me what they imagined to be the English name. All these pretences do not make it the less beggary, and they probably get more by it than they could by honest labour. I will acknowledge, however, that they are not insolent or abusive, and they are never out of humour.

Having thus discharged my bile against the disadvantages of Killarney, I will return to my more settled object. The peninsula of Mucruss, most of Lord Kenmare's park, and several rocky prominences besides, are of limestone. It never rises high, nor does it anywhere form part of the mountains, yet I was disappointed in not finding on it any one of those plants which usually characterize a calcareous soil in England. *Pimpinella magna*, of which I observed two or three plants on a wall at Mucruss, is I think the only exception; and perhaps *Epipactis latifolia* may delight in such a soil. One or two of the foreign *Cisti* have been planted, and look almost naturalized, but there is no native *Helianthemum*. In the grounds at Mucruss *Rubia peregrina* makes its appearance, and *Lastrea Thelypteris*. *Equisetum Mackaii* is said to be there, but I did not see it. *Achillea Ptarmica* and *Lychnis dioica* I did see,—both great rarities in the south of Ireland.

I took a boat to the head of the upper lake, and thence ascended to the top of the Gap of Dunloh. Nobody suspects Lord Kenmare or Mr. Herbert of making a profit by permitting their servants to admit you to their grounds; but the owner of a cottage at the end of the upper lake exacts a toll from those who pass to or from the Gap of Dunloh, and the permission to make a round which is generally laid out for the tourist at Killarney depends upon the avarice or caprice of an individual. The view from the summit of the pass and from some parts of the descent is very fine, but as a mountain hollow the Gap of Dunloh is not to be compared to Coom-na-Capel (the Glen of the Horse), to which there is no path, and which hardly anybody visits.

On the ascent towards the Gap I was offered some very indifferent specimens of *Trichomanes radicans*. The original place of its discovery was, I believe, Torc waterfall, whence it has long disappeared. Hundreds of sharp eyes are employed in discovering it in new places, and hundreds of active hands in eradicating it as soon as discovered; and while the children can get a shilling for a single frond it is not likely to have an opportunity of increasing itself. The process implies that new places are continually found; but there is very little chance that a passing stranger should hit on any of these, though his eyes and legs may be much better than can be expected from a man on the verge of eighty.

Of the three Saxifrages which mark the vegetation of the south of Ireland, *S. umbrosa* is abundant everywhere in the mountain district; *S. Geum* is much less so, yet it is not rare; but of *S. hirsuta* the quantity is comparatively very small. *S. umbrosa* varies in the form of the leaf, but I did not see any of which the blade was so round that I could refer it to Mackay's *S. elegans;* nor did I see any of his variety *serratifolia.* Still less did I observe *Andrewsii,* which perhaps after all is a garden hybrid. *Euphorbia hiberna* and *Lastrea Fœnisecii* are as common in Kerry as they are in Cork.

On the 27th of June I went to Kenmare. The road is a magnificent one, winding behind the mountains of Turk and Cromighan, and exhibiting noble views of the lakes, and afterwards of the estuary of Kenmare and the range of mountains which bound Bantry Bay. Next day I crossed these mountains by a road which rises still higher than that of the day before. The mail cars by which I performed these journeys are not the most convenient or comfortable carriages in the world, especially in a wet climate; nevertheless they greatly facilitate our rambles in these countries, as they are kept up to very small places, where one otherwise could not expect to meet any public conveyance. The descent from the summit towards Glengariffe presents a most glorious view of Bantry Bay and its neighbouring mountains. There are two large inns at Glengariffe, about a mile apart. I slept at the first, kept by a Mr. Eccles (there are no signs to the Irish inns), which seems to be the preferable one, though from the other we have a much more extensive view of the bay and its surrounding mountains. I walked over Oliver Cromwell's bridge, which is said to have been erected in twenty-four hours, and found on it a *Hieracium,* which perhaps is *H. Lawsoni* of Villars; but I agree with Koch in thinking the plant of Smith to be a different species. A few bristles occur on the back of the teeth of the florets, but this is not constant, and this character seems occasionally to be found among the *Pulmonarieæ.*

In the evening Professor Smith and his lady and Mr. Allman and his sister joined me. They had had a long day's journey, visiting Googan Barra, a lake at the source of the Lee, and the pass of the Cumminer, in the way; but they did not seem to have discovered much in botany. The lake furnished *Lobelia Dortmanna* and *Isoetes lacustris,* both of which occur in many of the mountain lakes of this district; and Mr. Allman brought with him *Gnaphalium dioicum* and *Lycopodium Selago.*

(To be continued.)

Discovery of Nuphar pumila *in Shropshire, by* T. A. Cox.

Mr. Editor,—I see in the 'Phytologist' for this month (p. 98) *Nuphar pumila* is mentioned as only occurring in Scotland. I enclose a specimen of a plant growing abundantly in a mere near here, which I named *N. pumila* without hesitation last year. It seems to me to agree exactly with all the descriptions of *N. pumila* with which I have compared it. If I have named it rightly, and it is not found anywhere else south of Scotland, it is an interesting addition to our flora here. Yours faithfully,

THOMAS A. COX.

Ellesmere, September 7th, 1855.

Of Periodicity in Vegetation; or the Periodic Changes which Plants undergo, their Duration or Longevity, etc.

Like animals, all plants originate in seeds or spores, or in some modifications of cellular tissue which is capable of germination. When the seed or spore begins to expand or to develope itself, the life of the plant begins, and henceforth continues to exist and grow till it has completed the period of its existence, unless its duration has been shortened either by accident or design. This change from an undeveloped seed or spore to a living organized object is one of the most important vegetable periodic changes. The period which elapses between this commencement of the plant's existence and its decay or death is called the duration of the plant, or the extent of its existence as a living object. With reference to duration, all plants are divided into *annual, biennial,* and *perennial,*—terms which do not in any case, it may be asserted, precisely express the exact period of the plant's life, and generally convey to the uninitiated an incorrect notion of this space. Perhaps the greater portion of our so-called annual plants do not exist a year, nor even half a year; few of them live more than a few months, and some of them only a few weeks. Our cereals, or our grain-bearing plants, germinate and ripen seeds in a shorter period than six months. In favourable seasons, even in this latitude, spring-sown wheat is matured and ready for harvesting in September. We have known barley sown in June, and reaped in the beginning of August. Many garden annuals and annual agrarial weeds spring up and ripen seeds in periods varying from a month to six or eight weeks. Again, every annual plant capable of enduring our winters may become a biennial by sowing it at a late period. If it survive the winter, and flower next season, it will be what is usually termed a biennial. If it be prevented from flowering, its vitality may be prolonged indefinitely. It will not perish, except by accident or design, till it has accomplished the object of its being, viz. the production of seed, whereby the race is continued.

Biennial plants usually grow up in one year or season, and flower the next, or they occupy part of two years or seasons, although some under favourable circumstances may be stimulated to flower the first year, and some rarely flower before their third year. Of this the *Archangelica* is an example: the writer of this once brought a plant of it into his garden, which he expected to flower next year; and it might have done so if not removed: it flowered the third year. Numerous seedlings have sprung up from the said plant, and none of them flowered the second year, although not kept back by removal. It might be very possible to retard the flowering of similar plants for several years longer merely by pinching off the flowerstalk as soon as it appears. Hence a biennial plant might have a duration of from four to six years.

The term *perennial* is still more indefinite than the two former (annual and biennial). Some of the so-called perennials, or permanent or everlasting plants, do not live more than two or three years. Several Cruciferous plants, usually reputed perennial, are very short-lived: the Wallflower, the Dame's Violet, and Seastock are examples. In reference to their duration, plants may be divided into two classes,—viz. first, such as flower only once from the same root, and second, such as flower oftener than once from the same root. The first class should include the humble fungus, which germinates, vegetates, and produces reproductive matter in a few hours,—*i. e.* springing up in the night or morning and perishing before midday,—and the American Aloe, which may be kept growing for hundreds of years by preventing its flowering. This class, though composed of individuals whose grand periodicity or duration might extend from half a day to a hundred years, might be rigidly or precisely defined. Its characteristic would be that all its members flowered but once in the whole course of their lives. Their duration as a class would indeed be very indefinite, but they would all have the common property of flowering only once. Many successive generations or races might be produced in the terms of one year or of two years (annual and biennial periods), or they might in many instances require three years to reach maturity, or they might, as in the case of the American Aloe, only flower after an existence of many years. The second class is capable of exact definition, though the periods of the existence of the individual members have a range as extensive as that of the first class. All plants that spring up again from the same root, or do not need to be sown afresh every time they are to produce flowers and seeds, are deemed perennials, although several of these do not live more than two or three years. The *Crucifers* supply us with examples of these short-lived perennial plants. Under very favourable circumstances these plants flower from the same root several times in succession. Sometimes they flower only once, becoming biennial, or even annual. Some of them, on the other hand, exist hundreds, yea thousands of years. The Yew-trees of England and Wales are examples of a vegetation that probably existed since the Flood. Let the sceptic look at the Yews at Merrow Downs, near Guildford: these trees are reduced to a mere film of wood and bark—the interior has been gone for ages. The gipsies have made their fires on the ground within their hollow stems; yet they exist, without exhibiting the slightest appearance of decay. They have been exposed to all atmospheric accidents, and have been mutilated and scorched, yet they bid fair to double their previous period of existence. The Baobab-trees of Senegal are computed (many of them) to be about five or six thousand years old. But these periods, great as they are, dwindle into insignificance when they are contrasted with the humble crustaceous Lichens. Many of these are coeval with the rocks on which they grow: we leave the determination of their age to the geologists. The stems of herbaceous plants that flower oftener than once from the same root, annually die down to the root; but the vitality of the species exists in a bud, which being formed the previous year, is expanded the next, and becomes a new stem, which in its turn perishes, after having performed its functions in the economy of the plant. This is one of the periodic changes of plants, but it is not the most remarkable. The period when a living being, whether vegetable or animal, begins to exist, and the period when it perishes, or, in other words, the space which elapses between its birth and its death, is to that individual of the greatest importance. Plants of greater permanency than the short-lived individuals which only endure for a few months, or for shorter spaces, undergo certain annual changes, which are denominated ascent or circulation or motion of sap, expansion and falling of the leaf, production of flowers, and ripening of seeds; or, in herbaceous plants, viz. those which have not permanent stems, as trees and shrubs have, there is an analogous periodic change in the decay of the herbaceous stem, and in the preservation of the life of the plant in the root-bud, which expands the following year, the year after the decay of the stem, and becomes a renewed stem, which in its turn perishes, after having fulfilled the functions peculiar to it.

Annual Periodic Changes.—The most important annual periodic changes of plants, next to their germination, maturity, decay, and death, are the generally annual phenomena of leafing and flowering. Some of the lower orders of plants germinate, bear flowers, and die in short periods; but the great bulk of plants only leaf and flower once a year, and are regulated partly by laws peculiar to themselves, and partly by the temperature, etc. All perennial plants, whether herbaceous or ligneous, have a period of cessation from growth. During this dormant state the vitality of herbaceous plants is resident in the root, or in the stem if the plant be bulbous, like the Onion, or tuberous, like the Potato. In the British and European forest and other trees, during at least six months in the year, there is no apparent growth; during this season leaves, young branches, and shoots are not produced. Some trees are clothed with leaves at an earlier period of the spring or summer than others are; for example, the Horse Chestnut, though an exotic, is in full leaf at least ten days earlier than the Oak. The Hawthorn is in leaf before the Blackthorn is, though the latter blossoms two or three weeks earlier than the former. Several of the Willows exhibit their golden catkins long ere their leaves appear. Some of the same tribe bear both leaves and blossoms at the same time. The Mezereon shrub flowers in March, but its leaves do not appear for several weeks after the flowers. Most of our common fruit-trees expand their blossoms just before their leaves, as the Pear and Apple: or they unfold both leaves and flowers together, as the Cherry.

Some shrubs and trees retain the greater portion of their leaves longer than one year, and hence are called Evergreens. These latter produce new leaves every season, but only a portion of the then existing leaves fall off, and consequently they are always leafy. The permanence of leaves, either for a few months or for a few years, is probably owing to the state of the sap in the tree. We observe that, in most trees, when the sap is less abundant in the extremities, the leaves begin to turn pale, or become of some hue very different from green, and subsequently fall off. Such trees are called deciduous, and the period of leaf-falling is termed the fall of the leaf. When the sap abounds in the leafstalk, and at the junction of the leaf and the stem or branch, the leaf is not easily detached. When, on the other hand, the sap is evaporated or condensed, the leaf falls off by its own weight, or by the agitation of the tree. Deficiency of sap therefore appears to be the cause of the fall of the leaf. Is sap more abundant in Evergreens, or is the longer permanency of their leaves due to the structure of the leaf? Do Evergreens abound more in sap at all periods than deciduous trees? After an herbaceous plant has done flowering, and before its stem entirely decays, a bud is formed at its root, in which all the vitality of the plant resides during its dormant state. Before the leaves begin to decay, and some considerable time before they fall off, buds are formed in their axils (angles which they make with the stem or branch), and these buds remain unexpanded, but in a vital state, till next season. Though provision is thus made, both in roots and leaf-buds, in both herbaceous and ligneous plants, for the continuation of the growth or of the existence of the species, neither can be accomplished without some increase of temperature. This is shown by the fact that the Oak, which in early seasons expands its leaves in the first week of May, in late or backward seasons is not in full leaf before midsummer. This is also proved by the leafing of all trees about a week earlier in England than in Scotland. If the Oak were removed to the extreme north of Europe it would not expand its leaves at all, and consequently would soon perish.

Diurnal Periodic Phenomena in Plants.—In many, probably in all plants, there may be observed certain changes which are ascribed to the combined influence of light and temperature, or to one or other of these agents. What has been fancifully termed the sleep of plants appears to be owing to one or both of these causes. In the latter part of the day, or towards evening, leguminiferous plants close their leaves; that is, the leaflets approach each other, as if for mutual protection. This phenomenon is observable in the Trefoils, and in other trifoliate plants; the two lateral or basal leaflets approach face to face, and the terminal one is applied to the edges of the lower ones. Certain blossoms unfold their petals in the morning and shut them up before noon, as the Goat's-beard, and some other compound flowers. Others, as the Evening Primrose, *Silene noctiflora,* etc., open their showy flowers about sunsetting. Some, as the Poor Man's Weather-glass, Chickweed, and many plants of the Caryophyllaceous order, expand their little blossoms when the atmosphere is dry; and in consequence a fine day is anticipated when these plants open even to a cloudy or perhaps mizzling sky. These facts prove that certain species have idiosyncrasies or characters peculiar to themselves. The decrease of heat acts upon the tissues of Trefoil, and of many other plants, and the effect of this action is, as above stated, the converging of the leaves. The same causes accelerate the opening of the Evening Primrose. Some plants, as the Dandelion, open when the air is moist, as it usually is in the morning; the Pimpernel closes when moisture is present in the atmosphere. The same atmospheric causes produce contrary effects on different objects. Diurnal changes appear in some plants, which are always affected by the rotation of day and night. In other plants there may be a change, though it is not so manifest in the external organs as it is in those of the plants above mentioned.

Duration of Flowers.—Many blossoms last only for a single day,—as those of *Hemerocallis,* the Yellow Lily, or 'Beauty of a day,' the Evening Primrose, and the Poppies. The flowers of the *Tigridia pavonia* fall off immediately after expansion. In bright warm weather some of the petals (parts of the flower) fall off before the rest are fully expanded. In moist or cloudy weather only do these flowers remain for any considerable portion of a day. On the other hand, some plants are in flower for weeks. The common Primrose is frequently in flower during the months of January, February, March, April, and May. In gardens the

Polyanthus, a variety of the Primrose, usually accompanies the Snowdrop, the Crocus, the Daffodil, the Crown Imperial, and all the spring flowers, both early and late. It is well known that the duration of flowers is very variable, as much so as the plants that produce them, although the range be smaller; but it is not so commonly known that temperature or atmospheric influences generally accelerate and retard the flowering of plants, as they prolong or shorten the duration of the flowers themselves. In this very summer (1855) the Hawthorn, which, on an average of years, flowers in the first or in the second week of May, blossomed with the Elder, which seldom flowers before midsummer. (See 'Phytologist' for September.) Few are unacquainted with the fact that certain plants flower in certain seasons; some early, some late. We do not look for snowdrops and daffodils at midsummer, nor for roses at Christmas. Each and all sorts of plants have their seasons or periods of manifesting their vitality, or activities of different kinds, and also their seasons of repose, or decay and death. This is what is understood by the periodicity of plants, and is observed by all; but the differences of latitude, of exposure or shelter, or soil, or even the idiosyncrasies of certain plants of the same species and in the same locality are not generally noticed. Hence arise the great discrepancies in the times or periods when a given plant is in flower; for over a range of ten degrees of latitude it is impracticable to attempt more than an approximation to the average or mean time of a plant's flowering, or of the duration of its flowers.

Temperature and moisture have a very powerful influence on plants, either in retarding or accelerating their periods of flowering. This fluctuation is as much as a month in March and April—probably a fortnight or three weeks in May, and at least a week at midsummer. If local circumstances—viz. soil and exposure—were uniform, we could, indeed, approximate very closely to the period when these common plants flower, by comparing the average temperature of past years and months with the temperature of the year in which we wanted to know when a given common plant might be expected in flower; but soil and situation are susceptible of so many modifications, that a close approximation is not to be expected. In the early part of the year rain delays the flowering of plants; at this time the earth is usually sufficiently moist, and plants only want heat to accelerate their growth. Towards midsummer they are often delayed from a deficiency of moisture. In general, the monthly average of heat will have a greater effect on plants than the annual average. The monthly averages exhibit a fluctuation of several degrees: for example:—

January: 31°·5, Fah., 34°, 35°, 37°, 38°·32, 40°·66; a range of above 9° in seven years.

February: 34°·33, 34°, 40°, 43°, 38°, 42°·25; range of 9°.

March: 37°·25, 42°·22, 42°·25, 45°, 42°, 44°·5, 46°; range 8°·75.

April: 47°, 49°, 52°, 50°·5, 49°·75, 53°, 49°·5; range 6°.

May: 54°, 59°·75, 56°·5, 54°, 53°·5, 63°·33; range 10°·28.

June: 68°, 60°, 59°, 60°; range 9°.

July: 70°, 62°, 62°, 61°; range 9°.

August: 58°·66, 70°, 63°, 67°; range 11°·34.

September: 57°·5, 59°, 60°·5, 51°·5; range 9°.

October: 45° 75, 56°·5, 49°·5, 47°; range 10°·25.

November: 43°, 44°·3, 43°, 40°·82; range 3°·21.

December: 39°·5, 44°, 42°·75, 41°·66; range 4°·95.

The annual averages are between 49°·75 and 51°·5; range 1°·75.

The average monthly temperature fluctuates about 8°, according to the above, while the annual average fluctuation is under 2°, and, if accurately determined by proper instruments, would rarely or ever much exceed one. The general average annual range, in any given latitude, is not probably above half a degree. The above results were obtained from a series of daily observations, made at 7 A.M., 1 to 2 P.M., and 8 P.M., extending over a period of from five to seven years. It is probable that the general statement of monthly and annual temperatures is too high, as the thermometer was not observed during the night, and a self-registering instrument was not employed. This, however, does not affect the monthly or annual ranges. The annual average temperature of London and its vicinity, *i. e.* within twenty or thirty miles of the metropolis, is about 50°. The annual average temperature of the south of Devonshire is probably one degree higher, 51°; and it appears that the temperature of the north of Sutherlandshire, Scotland, is 46°. The early flowering plants are nearly a month later in the north of Scotland than they are here; for example, the common Primrose, which flowers here in

March and April, flowers in Aberdeenshire in April and May. The *Menyanthes trifoliata* is not more than a fortnight earlier with us than it is in Scotland; and it is probable that the midsummer flowers are only a week later in the northern parts of the island, while the July and August flowers are as early in Scotland as in England. The temperature of the summer months in Scotland is about as high as in England; but the difference of temperature in England and Scotland during the spring months is very considerable.

The term periodicity, when referred to plants, comprehends the beginning, the duration, and the termination of vegetable life; also the times when plants flower, ripen, seed, etc. The ascent of the sap and the falling off of leaves in the more permanent forms of plants are also periodic phenomena. The repose, or apparent repose of vegetable beings, as in winter, when all outward signs of vitality disappear, and the diurnal changes which some plants assume when their blossoms shut or open, and when their leaves are fully expanded or partially folded up, are all referable to the same causes. These causes are mostly beyond our *ken;* but we profess to deal with facts or results only, and some of these we have now laid before our readers. Another remark may not be impertinent. The terms annual, biennial, and perennial have been stated to be very indefinite; the first characterizing plants which live a few weeks, or which may prolong their lives for several years. The second is applied to plants which, under ordinary circumstances, never flower till the year following that year in which they germinate, but which may exist five or six years. The third class embraces plants which live from two or three years to as many as twice two or three thousand years. It has been advanced that all plants may be classed by their duration into two classes; viz., first, such as flower only once from the same root; and second, such as flower oftener than once from the same root. (We intend to devote an article to herbaceous, shrubby, ligneous, evergreen, and deciduous plants.) Our remark is this, and it will be shorter than our preamble: we do not quarrel with the words annual, biennial, and perennial, nor do we wish to supersede them, or even to see them superseded by more philosophical expressions. We merely wish to inform our readers, that these terms are not to be understood in their strictly literal or verbal sense: and further, our wish was to state their import as employed by botanical writers in general.

Reviews.

The Natural History Review. No. VII. July, 1855. Published Quarterly. Including the Transactions of all the Irish Natural History Societies. London: Samuel Highley, Fleet Street.

This number contains reviews of recent works on the *Diptera* of Northern Europe, a History of British Butterflies, Contributions to British Paleontology, Entomologist's Annual, a geological paper by Miller, and a list of British species of *Geodephaga*, etc.; but as these subjects are not within the sphere of our Journal, we must refrain from any further notice of them. Some account of the Marine Botany of the colony of Western Australia comes within our scope, and we have much pleasure in presenting our readers with an extract descriptive of the shore of Rottnest Island, which is about twelve miles west by north from Freemantle:—

> Almost the whole island is surrounded by limestone reefs, at greater or less distances from the shore. The limestone seems of very recent formation, and is of similar character to that at Arthur's Head, and in other localities, near Freemantle, already described by several geologists. It is remarkable for very fantastic and diversified forms. The reefs are generally flat-topped, but the surface is very rough, either thickly bristling with sharp points, a few inches high, or broken into miniature mountains and valleys —strongly recalling to mind the *raised map* of Switzerland. Other reefs are ridged; the ridges parallel to each other, but variously directed towards the shore. The outer face of the bordering reef is generally very steep, often perpendicular or overhanging; and frequently it goes down, like a quay-wall, into two or three fathoms of water. At the north-east angle of the island, a very remarkable quay-like reef, called the 'Natural Jetty,' runs out many hundred yards into the sea. Its surface is laid bare, at low water of spring tides, which rise and fall from two to three and a half feet. Many of the detached reefs are shaped liked round tables, or mushrooms, being fixed on a slender central stalk, often only a few feet in diameter; the horizontal ledge, or table, spreading out to many yards on all sides. Sometimes two or three of these tables are joined together by narrow stone bridges; and sometimes large holes, through which you can look down two or three fathoms into the clearest water, are found in the table; and the swells rise through them and flow over. I often wondered how these *filigree* reefs could so long withstand the beating of the waves in winter storms. Almost all of them offer good harvests for the algologist, and beautiful pictures to any one who can appreciate the loveliness of living vegetable forms. The surfaces of most are well clothed with the smaller *Rhodospermeæ* (*Laurenciæ*, *Hypneæ*, *Acanthophora*, etc.), and

thickly studded with a *Caulerpa* (*C. lætevirens*, Mont.?) with short stems, clothed with brilliant club-shaped leaves, resembling miniature clusters of grapes. At every few yards, deep, basin-like hollows, of greater or lesser size, break the surface of the reef, and afford well-sheltered nooks for a variety of beautiful Algæ. The water in these basins is always intensely transparent; the bottom frequently of white sand; and the steep and craggy sides clothed with Algæ vegetation, in which the brightest tints of green, purple, carmine, and olive, and the most graceful waving forms, are mingled in rich variety. Here is the favourite locality of some eight or ten species of *Caulerpa*, of several very distinct forms, and every one a beautiful object. All these are green; but the tints vary from the darkest bottle-green to the pale, fresh green of an opening *beech* leaf. Some resemble soft ostrich feathers; others, branches of the Norfolk Island pine; others, strings of beads; others, squirrels or cats' tails; and *C. scapelliformis* is like a double saw. Under the shelter of the *Caulerpæ* the smaller *Rhodosperms* (such as *Dasyæ* and *Callithamnia*) are often found. But these are most numerous on the perpendicular sides of the border reefs, where also rich meadows of *Caulerpæ* are seen waving in the clear water, from a foot beneath the surface to a considerable depth. Various *Fucoideæ* and *Ecklonia radiata* are scattered here and there through the deeper pools, and on the sides of the reef. None of these are ever left dry at low water. In many places a profusion of a *Bryopsis* (*B. australis*) enlivens the rocks with its silky tufts of green, each tuft separate from its neighbour. Some of the shallower reefs near high-water mark are partially covered with sand; and this is the habitat of *Penicillus arbuscula*, a little green Alga, which may be compared either to a miniature tree or to a shaving-brush. *Struvea plumosa* abounds on all the reefs, at about half-tide level, generally growing on the very edges of the rock-pools and border reefs. I obtained from Mr. Stanford, Colonial Secretary, a specimen of a new *Struvea*, sent by Mrs. Drummond from Champion Bay, differing from *S. plumosa* in its vastly larger size and more compound network. The specimen has been bleached white, and in this state strongly resembles a beautiful pattern of *old point-lace*, and might be made into ladies' collars, as it is of a tough substance.

The Catalogue contains 352 species, of which 277 appear peculiar to the Australasian flora, and 75 either to *pelagic* species, or to more or less distant botanical regions; these may be grouped as follows:—

	Whole number collected.	Australian.
Ser. 1.—Melanospermeæ	42	26
,, 2.—Rhodospermeæ	270	216
,, 3.—Chlorospermeæ	40	35
	352	277

In reviewing the Algæ collected in this tour, not the least interesting feature is the comparison of the connecting links which may be traced, showing affinity with the vegetation of other coasts. Twenty-seven species, common both to the British Islands and Western Australia, have been observed by Dr. Harvey; for an enumeration of these, as well as those which associate this very rich marine flora with other lands, we must refer our readers to the pages of a memoir which, like everything that has issued from the same pen, will be gladly received by all who feel an interest in the subject of which it treats. Our regret at the brief way some points are touched upon is, however, removed by the promise of copious descriptions, and a fuller memoir, on its author's return to Europe, when we hope to call our readers' attention to the result of his labours.

Notes on Books. No. I. May 31, 1855. London: Messrs. Longman and Co.

In this periodical, which is exclusively confined to Messrs. Longman and Co.'s publications, there is a very satisfactory analysis of about fifty works (critical opinions and laudatory notices are excluded). The only work bearing on British Botany is Wilson's 'Bryologia;' and the notice merely states that the original work, 'Muscologia Britannica,' of Messrs. Hooker and Taylor, has been thoroughly revised and considerably enlarged by Mr. Wilson, the president of the Warrington Natural History Society. The plates have been corrected, and additional plates added.

In this number the publication of the Supplement to Loudon's encyclopædia of Plants is also announced.

The Educational Expositor. Edited by T. Tate, F.R.A.S., and J. Tillard, F.R.G.S. *Now the recognized Organ of the United Association of Schoolmasters.* London: Longman and Co.

The August number of this periodical contains a Lecture on teaching Botany in schools, by one of our correspondents; and on this subject, and on the lecture itself, we have a few remarks to make. In the first place, we may say that there is no science so well adapted to attract and rivet the attention of young people, boys and girls, as some of the natural sciences; also, of all the natural sciences, Botany is one that can be prosecuted in all places, and almost in all seasons, at the smallest expenditure either of money, or time, or application. The objects of the science in question are always either within reach or are easily obtained; and their collection and analysis can be conducted without giving pain or offending the most delicately fastidious. The apparently formidable nomenclature, which presents a serious obstacle to the uninitiated, would be divested of all its terrors, if an object was first presented to the learners, and its characters briefly and simply pointed out. A *term* without a corresponding *idea* is difficult to apprehend or remember; but in the sciences of observation—and natural sciences are based and constructed on this faculty—this difficulty never occurs. We meet with this difficulty in language and in mathematics, where the visible signs are only representatives of something else; but in Botany we can exhibit the very object on which we are to give instruction. If the teachers of our schools, both male and female, would occupy only one-tenth of the time usually spent in learning the *abstrusities* of grammar and other mental sciences, in giving their pupils lessons on the common things which grow at their feet, on plants and flowers (all children are fond of flowers), they would thereby lay a good foundation for the more difficult portions of a scholastic course. We deem it no less than a misfortune that our teachers and future teachers have not themselves received any instruction in the science of natural objects. The study of nature has in this country been considered only as the privilege of the few, who have leisure, learning, and pecuniary means without limitation; and it is to be regretted that very few of these so favourably circumstanced have contributed either to spread a taste for natural science, or have removed the obstacles to its more extensive diffusion. The Lecture, which was addressed to the *United Association of Schoolmasters,* no doubt was delivered with this express purpose and understanding, viz. to diffuse a knowledge of some of the more prominent and interesting features of the science; and if the audience had been as well *read up* in the theory and practice of Botany as the lecturer, some of his facts might have been reproduced in the schools and among the pupils of this country, represented by the schoolmasters and schoolmistresses there present. This, assuredly, was not the case. The Lecture might have been adapted to the intelligence of the members of the Botanical Society of London, or to some similar audience; but it was not well suited to the members of the scholastic profession then and there assembled. *Dilettante* lectures are suitable enough to the members of our literary and scientific societies, who only wish to have an hour's amusement—looking at chemical experiments or handsome diagrams, or who desire only to be *cheated* into the belief that they know something of a science, because they have listened to a man who could glibly, or perhaps eloquently, talk about it for an hour or so. But the meeting of schoolmasters in St. Martin's Hall is no pastime: it is a very serious affair,—a matter of practical business. The audience meet there to hear and learn something which they might or should employ in their respective duties as the instructors of youth. We fear the Lecture was not of a sufficiently elementary character to meet the wants and the wishes too of the auditors. We also think that the directors of the Association might have had a lecture much more profitable to their constituents, if they had not intimated to the lecturer that his lecture would be published. An elementary treatise on Botany, which might be published and sold for a shilling, would convey more real information than any lecturer can in six lectures, if they are to be readable, as well as tolerable to an auditory. The audience at St. Martin's should have been addressed precisely as the lecturer would address an audience at any of our medical schools, or as he addresses his pupils in his own private lecture-room. Such a lecture might have been profitable to the hearers, and probably would have been so; but it would not have had much interest for the public.

Obituary.

DR. GEORGE JOHNSTON, F.R.S.E., &c.

It is probable that very few who read the 'Phytologist' are not already informed, from other sources, that British Botany has recently lost one of its most zealous, able, and successful supporters; yet it appears to be a duty devolving on the conductors of this Periodical to notice this melancholy event, and to pay their tribute of deference to science, and to the memory of the deceased. To professors of medicine generally the science of Botany is under great obligations: on this subject we hope to be able to devote an article in some future number. To north-country practitioners of the healing art we are indebted for almost all our knowledge of the plants of Scotland and of the Borders. We need only mention Dr. Skene, the correspondent of Linnæus; Dr. Lightfoot; Dr. Murray, the author of the 'Northern Flora,' whose premature death was a great loss to science in general, and to botany in particular; Dr. Dickie, the learned professor of Belfast College; and the subject of this notice, Dr. Johnston, of Berwick-on-Tweed. As a physician and naturalist generally, we did not know Dr. Johnston; but those who did, bear ample testimony to his worth, both as a medical man and as a promoter of science in general; and we know, from the geniality of his disposition, that he was a very estimable man in domestic, social, professional life. We notice him as a botanist. His first distinct work on Botany is the 'Flora of Berwick-on-Tweed,' in two volumes, published in 1829 and 1830,—a work which is enlivened by appropriate scraps of poetry, illustrative either of the plants specified, or of the localities where they were collected. This has the advantage of rendering a scientific work attractive to some who would not notice it if it was rigidly restricted to a statement of scientific facts. This plan has its admirers; and we have heard the 'Flora of Berwick-on-Tweed' highly commended for this distinguishing feature. We do not eulogize this distinctive characteristic, and we will not blame it. The work itself has been before the botanical public twenty years and more, and it has consequently got its due meed of praise already. Our opinion is that a very interesting work on the poetry of flowers and their associations might be prepared, in which plants should not occupy the prominent place, but serve merely to point the force of the poetic sentiment or embellish the description. A catalogue of plants is not the most appropriate place for a selection from the legendary lore and lyrical effusions of the past and present ages. We hope to live to see local lists of plants, so compiled as to be obtainable on as easy terms as the Catalogue of British Plants, published under the sanction of the Botanical Society of London. We may, in these days of cheap travelling by excursion trains and steam-boats, visit Berwick-on-Tweed, and we should like to be able to buy a list of its plants at a smaller cost than the expense of travelling to and from the *Borders*. But this is a bookmaking age. The last work, and the most interesting to botanists, published by this amiable man, is 'The Natural History of the Eastern Borders.' Of this the botanical portion alone has appeared; but it is fraught with racy descriptions of nature and nature's productions; it is the work of a man whose sympathies were with humanity, and whose heart and soul overflowed with the enjoyment derivable from natural scenery and natural objects. This work affords ample evidence of the pleasures afforded by plants to the man of taste, feeling, and science; a proof that the wild, neglected things of our glens, mountains, and fells are capable of educing those associations and aspirations which contribute a large quota towards the amount of human happiness. But we are not reviewing this work, but paying a respectful tribute to the memory of its author. Dr. Johnston was the promoter, and we believe we may say the mainstay, of the Berwickshire Naturalists' Club, and many of its valuable communications are from his pen. These field clubs, which are not uncommon in the north and west of England, we should like to see established in the southern counties of the Island,

and especially in the neighbourhood of London. Our Natural History Societies sometimes attempt more than they can achieve, and run the risk of perishing for want of funds. A field association, agreeing to meet near some railway station at stated times, pledged to nothing but to meet and herborize, geologize, or entomologize in the neighbourhood, and then return, each member to his dwelling, would not be an expensive affair. Yet this would be productive of much good, not merely to science, but to the progress of humanity—a still more comprehensive and honourable object. It is true that we have societies enough in London, where we can meet and talk about science, and get acquainted with each other, and with ourselves too. But scientific etiquette lays some restrictions on our intercourse even here, which a rural excursion would in some measure remove.

Dr. Johnston was fully as eminent in other sciences as in that to which we are limited. His treatises on the British Zoophytes, of which there have been two editions,—the first in one volume, the second in two,—and his History of British Sponges and Lithophytes, are regarded by the authorities on such subjects as standard works. We believe he was also the Secretary of the Ray Society, at least on its formation and during the first years of its existence. His civic duties as Mayor of Berwick were not inconsiderable, and this honourable office he filled with much credit to himself and gratification to the community; and his urbanity and diligence were gratefully acknowledged by those who honoured him with their confidence and support. He was indeed a man of great labours (viz. *magni laboris*), and has bequeathed to posterity many testimonies of his talent, sympathy, geniality, and scientific merits. His life was an illustration of the almost proverbial saying, that the more a man devotes himself to his profession, or bread-study as the Germans call it (*Brodstudium*), the more leisure he finds for pursuits of a secondary nature.

The practice of a medical man is, under any circumstances, very engrossing and very laborious; but most so in the country, and particularly so in such counties as Northumberland and Berwickshire, the theatre of Dr. Johnston's professional labours. With all these professional, civic (he was twice Mayor of Berwick), and domestic cares, the subject of this brief notice found time to teach his contemporaries and posterity sound knowledge on the natural history of all the living beings, whether plants or animals, produced either on land or sea, in the district of country with which he was professionally or socially connected; and erected for himself a far more durable monument than the work of the sculptor, though embodied in the choicest *Parian*. *Exegit monumentum perennius ære.*

BOTANICAL NOTES, NOTICES, AND QUERIES.

LINNÆAN SOCIETY.

Extract from a Memoir on the Origin and Development of Vessels in Monocotyledonous and Dicotyledonous plants, by Dr. F. F. Allemão, of Rio Janeiro, translated and communicated by J. Miers, Esq.—In a note to this paper, the translator observes that Dr. Allemão, of Rio Janeiro, in making his observations, was desirous of testing the validity of the theory suggested by Du Petit Thouars, and more recently modified and supported by Gaudichaud, which contends, contrary to the views of Mirbel and other eminent physiological botanists, that all woody fibres proceed from the nascent leaf-buds, and thence descend to the radicular extremity of plants. Dr. Allemão states that his observations in no way tend to support that theory.

Memoir on New Species of *Proteaceæ*, by Dr. Meisner.—In his prefatory remarks, the Doctor states that since the publication of Dr. Brown's 'Prodromus,' in 1810, upwards of 400 species have been added to the 204 Australian species of that work, viz. 163 by Dr. Brown, 48 by Dr. Lindley, and 195 by himself. The number of new species described or noticed in this paper was 66, including 12 of which characters drawn up from specimens in the Society's herbarium had been forwarded to the author by Mr. Kippist, the Society's Librarian.

What did John Bunyan mean by the "Pilgrim's Weed"? The passage alluded to is in the second part of the 'Pilgrim's Progress,' and runs thus: "Then said Mr. Dare-not-lie, It is true, they neither have the pilgrim's weed nor the pilgrim's courage," etc. etc. There is another herb or plant mentioned in an earlier part of the same pleasing allegory, when, in speaking about the Valley of Humiliation, one of the sojourners there is represented as, though "clothed in mean attire, to live a merrier life, and to wear more of the herb called Heart's-ease in his bosom, than many who are clad in silks and velvets." Is it known at all at what period this favourite plant first took the name Heart's-ease? J. B. (*St. Alban's.*)

We should be glad to see a specimen of *Fumaria confusa*, Jordan, an intermediate form between *F. officinalis* and *F. capreolata*. *F. confusa* is surely a South European species or form; but is there any notice taken of it in Grenier and Godron's work, which might be expected to contain every plant spontaneous in the South of France? We would thank our learned correspondent for a synonym, as we have not Jordan's work at hand.

Botanical Notes from South Devon, by Rev. T. F. Ravenshaw, M.A.—The following is a list of plants I found during a sojourn at Torquay and Teignmouth in 1852. As I did not arrive till August, my catalogue contains several not met with by Mr. Gissing; and I have omitted any mentioned in his Paper in No. II. of the 'Phytologist.' *Cakile maritima*, Shaldon Point; *Dianthus prolifer*, Bishop's Teignton; *Saponaria off.*, var. *hybrida*, near Teignmouth, on the Newton Road; *Silene Armeria*, Teigngrace; *Spergularia marina*, Teignmouth; *Linum usitatissimum*, New Cut, Torquay; *Geranium dissectum*, Daddyhole Plain; *Erodium cicutarium*, var. *album*, Dawlish Warren; *Trifolium arvense*, Shaldon; *Tamarix gallica*, Paignton; *Cotyledon Umbilicus*, Plymley; *Fœniculum vulgare*, near the bridge, Teignmouth; *Scandix Pecten-Veneris*, Daddyhole Plain; *Daucus Carota*, Anstis Cove; *D. maritima*, Teignmouth; *Sherardia arvensis*, New Cut, Torquay; *Fedia Auricula*, near Dawlish; *Gnaphalium uliginosum*, ditto; *Inula Helenium*, Shaldon Hill; *Serratula tinctoria*, ditto; *Pyrethrum inodorum*, Teignmouth; *Artemisia Absinthium*, Bishop's Teignton; *Tanacetum vulgare*, Newton St. Cyre's; *Salvia Verbenaca*, Plymouth; *Calamintha Acinos*, Dawlish; *C. off.*, frequent in hedges and walls; *Galeopsis Ladanum*, New Cut; *Antirrhinum Orontium*, Dawlish; *Solanum nigrum*, Dawlish Warren; *Datura Stramonium*, New Cut; *Anagallis carnea*, var., New Cut; *Samolus Va-*

lerandi, ditch near Anstis Cove; *Chenopodium rubrum*, New Cut; *Humulus Lupulus*, Newton St. Cyr's; *Neottia spiralis*, *Scilla autumnalis*, both plentiful on Babbicombe Downs; *Polypodium vulg.*, var. *hibernicum*, Moore, Berry Pomeroy; *Lastrea spinosa*, Newton St. Cyr's; *Asplenium Adiantum-nigrum*, var. *acutum*, Combe; *Lastrea multiflora*, Berry Pomeroy, very fine; *Oxyria reniformis*, under the walls of Teigngrace Church. At Alphington, near Ottery St. Mary (in June, 1855), I found a dwarf form of *L. multiflora* in fruit, the fronds of which were scarcely three inches in length.

Sir,—Your May number of the 'Phytologist' only reached me with three others yesterday. I observed in p. 23 inquiry about an Hypericum, which is an old acquaintance, and not considered a British plant; the flowers are not yet out, but are very small and insignificant, smaller than the *perforatum*. The plant is an outcast from some garden further up our valley, and has established itself. There are no others in the neighbourhood. J. M. TATHAM.

Settle, 3, 8, 1855.

Misseltoe of the Oak.—The Misseltoe of the South of Europe, or the *Viscum* of the ancients, is undoubtedly the same plant as that which grows principally on *Quercus Cerris*, and which Linnæus named *Loranthus europæus*. This plant however is not met with north of the Alps, nor in the west of Europe. The only plant like it which grows in these parts is the common *Misseltoe* (*Viscum album*). Nearly all botanists agree that this plant is never found growing on Oaks; whilst we know, from the mythology of the Celtic and German nations, that the Oak-Misseltoe was the one, and the only one, regarded with veneration. . . . An Englishman of the name of Beaton states that he once found the common Misseltoe on an Oak in the neighbourhood of Ledbury, and that he succeeded in making it grow on Oaks. It is possible that the veneration with which the Oak-Misseltoe was regarded was connected with its rarity. (Linnæa.) We have heard of *Viscum album* being gathered from the Oak near Haselmere, in Surrey. Can any of our readers confirm this hearsay?

Communications have been received from

Rev. R. E. Cole (two communications); J. G. Baker; John Windsor, F.L.S.; J. B., St. Albans; Miss Browne; John Windsor (second communication), with apologies and thanks; C.; Miss Browne (second communication); Hewett C. Watson, F.L.S.; T. A. Cox; Joseph Woods, F.L.S.; C. S. Parker; Robert Kennedy; John Lloyd; J. E. Sowerby; Thomas Moore, F.L.S.; D. Stock; W. Matthews, jun.; E. Bourgeau; T. W. Gissing; Miss Hutton; Maxwell T. Masters, F.L.S.

BOOKS RECEIVED FOR REVIEW.

Notes on Books published in 1855, *etc.*
Schacht and Currey's Microscopic Phytology, etc.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Plants found in the Neighbourhood of Settle, Yorkshire, *omitting some of the very common ones. By* John Windsor, F.L.S., F.R.C.S., etc.

In attempting an enumeration of many of the plants growing near Settle, in Craven, Yorkshire, I beg leave to offer a few preliminary remarks. The appearance of the town and surrounding country is one of a very striking and interesting character. The former lies under, as it were, a very remarkable and impending rock, called Castlebar, or Castleberg, behind which is a series of hills, called Highhills; and behind these, others, among which are Attermire Rocks and Attermire Cove, with other singularly-formed Scars around. On the eastern side of these, winds along by Stockdale and the adjoining Rye-loaf Hill one of the roads to Malham, Gordale, Malham Tarn, etc. If the traveller extends his journey a few miles further, he reaches Littandale, with Kilnsay Cragg, Grassington, Kettlewell, etc., in one direction, and in the other Arncliffe, Hesleden Gill, Penyghent, etc.

Seated on Castleberg, above Settle, the spectator views immediately before him the valley of the Ribble. The bridge over this river is about half-way between Settle and the contiguous village of Giggleswick. By the latter place there is the high-road leading under Giggleswick Scars, by the ebbing and flowing well northward, towards Clapham, Ingleton, situated at the foot of Ingleborough, and Kirby-Lonsdale.

The rocks, so abundant in the neighbourhood of Settle, are generally calcareous, but interspersed with gritstone about Giggleswick, as at Cravenbank, etc. On the higher mountains around, as Fountain's Fell, Penyghent, Ingleborough, etc., there is, I believe, in their constituents a moderate portion of the schistose character, as mica-slate, etc.

It might well be predicted that a neighbourhood so diversified in its aspect, and possessed of almost every variety of surface, would not be deficient in the number and variety of its plants; nor has it been indeed without a succession of botanical inquirers, each of whom may have added something to the knowledge previously acquired.

Ray, in his 'Synopsis Stirpium Britannicarum' (the second edition: the one I have was published in 1696), makes not unfrequent mention of this district, which he seems to have visited himself, and to have derived additional information of its plants from other contemporary investigators, as Lawson, who resided in the adjoining county of Westmoreland, and also from T. Willisel, Lister, etc.

In July and August, 1782, it was visited by that excellent botanist Curtis, at the request of Dr. Lettsom, who had been a pupil of Mr. Abraham Sutcliffe, surgeon, Settle. His list comprehends plants growing at some distance, as those about Kendal in Westmoreland, and other places, some thirty or more miles off; but I have thought it better to limit (with very few exceptions) my list to about half that distance. Since the period of Curtis's visit, it has been partly explored by others, as by Mr. Caley, then of Manchester, I believe; by the Rev. Mr. Bingley, etc. To come to a later period, I have pleasure in stating that about the commencement of the present century the study of botany was zealously cultivated by two individuals residing for many years at Settle, viz. the late William Kenyon and T. W. Simmonds: the latter I succeeded as a pupil of Mr. William Sutcliffe, long the oracle, as it were, of medical science in a wide circuit. Mr. Simmonds, from his extraordinary talents and the devotion of them to natural history, would doubtless have greatly distinguished himself had his life been spared, but going out as a naturalist in the suite of Lord Seaforth, Governor of Barbadoes, in the year 1803, he extended his researches from that island to Trinidad in 1804, where, being attacked with fever, he soon sank under its influence. From these two persons I obtained much information of the plants growing in that part of Craven. I was able to continue my botanical inquiries for many years after that period, and thus to add pretty considerably to the list of plants growing there. My friends, John Tatham, John Howson (father and son), and perhaps others, have, still more recently and up to the present time, been enabled, by residing in the neighbourhood, to swell the list; but there is yet ample room there, especially in the more minute Cryptogamic department, for the labours and discoveries of future botanists.

Hippuris vulgaris. Stagnant water, bottom of waste ground below Birkbeck's Weir. Giggleswick Tarn.

Callitriche verna. Stagnant water near Settle Jugs. Rivulet, western end of Giggleswick Tarn.

Ligustrum vulgare. Edge of the shrubby rocks above Gordale.

Circæa lutetiana. Kelkowe. Loose stones in the banks, etc. Common.

Circæa alpina, var. *β, intermedia,* of Decandolle. Found at Malham Cove.

Veronica officinalis. Hills about Giggleswick Tarn. Quicksike Green, etc. Frequent.

Veronica Anagallis. Giggleswick Tarn. Below Attermire Cove, etc.

Veronica scutellata. Rivulets near Wigglesworth Tarn. Boggy places in a field adjoining the right-hand side of High Ridge Wood. Side of osier-ground near Foredale. Ditches between Giggleswick and Close House.

Veronica montana. High Ridge Wood. Lankland Woods. Holling-hall Wood.

Veronica polita. Found occasionally in similar situations as *V. agrestis.*

Pinguicula vulgaris. Boggy places near Giggleswick Tarn. Bog at the west end of Kelkowe. Common in moist places about Penyghent, Arncliffe, and Malham.

Lycopus europæus. Side of Giggleswick Townsbeck. Austwick, near the bridge. Near Giggleswick Mill.

Valeriana officinalis. Ditches in Rathmell. Settle Jugs. Ribble side. Kelkowe, etc.

Valeriana dioica. Kendall's Gill. Settle Jugs, etc.

Valerianella olitoria. Kelkowe. Stainforth Scar. Malham Cove. Cornfields, etc.

Iris Pseudacorus. Ditches about Newhall and Holling Hall. Settle Jugs. Beggar-wife's Bridge.

Schœnus nigricans. Very plentifully in a boggy place in a field on the left-hand side, half-way betwixt Long Preston and Swindon, about a quarter of a mile beyond the fifth milestone from Settle.

Blysmus compressus. Near Giggleswick Tarn. Lower corner of Kelkowe wood. Moist place in a field adjoining the rivulet opposite Gordale House.

Eleocharis palustris. Plentifully about Giggleswick Tarn.

Eleocharis acicularis. Side of Giggleswick Tarn.

Scirpus sylvaticus. Ditches below Raingill in Bolland.

Scirpus cæspitosus. Hills about Giggleswick Tarn.

Scirpus pauciflorus. Near Giggleswick Tarn. In very great plenty, with *Schœnus nigricans,* between Long Preston and Swindon.

Scirpus lacustris. Giggleswick Tarn.

Scirpus setaceus. Ditches by the gate going on to Swarthmoor, near Settle.

Eriophorum vaginatum. Ascent to Ingleborough, plentifully, as well as on Fourscore Acre and other moors. Cocket Moss. Betwixt Wigglesworth and Tosside Chapel. Pastures near Cowside.

Eriophorum polystachion (Smith), or *Er. polystachion,* var. γ, *elatior* (Bab.). Near Giggleswick Tarn. (Cocket Moss, *Mr. J. Tatham.*)

Eriophorum pubescens (Smith), or *latifolium* (Hoppe and Bab.). Plentifully, with *Schœnus nigricans,* between Long Preston and Swindon, in a boggy field. Giggleswick Tarn pasture.

Eriophorum angustifolium (Smith), *polystachion* (Bab.). Very common on the moors about Settle.

Nardus stricta. Near Giggleswick Tarn, etc.

Phalaris canariensis. Ribble-side, about a hundred yards below Giggleswick bridge, but perhaps accidentally brought there.

Phalaris arundinacea. Ditch, bottom of the waste ground below Birkbeck's Weir. J. Lund's Wood. Settle Jugs.

Phleum pratense. Meadows and pastures. Common.

Phleum pratense, var. γ, *nodosum* (Smith). Below Birkbeck's Weir.

Alopecurus geniculatus. Not uncommon about Settle, as near Giggleswick Tarn, near Beggar-wife's Bridge, in the lane near Quicksike Green, etc.

Milium effusum. Lund's Wood. Lord's Wood. Near Stackhouse.

Agrostis alba. Moist lane below Giggleswick. Below Birkbeck's Weir, etc.

Agrostis alba, var. β, *stolonifera.* By side of ditches running from Giggleswick Scar into the Tarn. Moist places about Giggleswick Tarn, near the rivulets.

Kœleria cristata. Lower Highhill, etc. Not uncommon on hills about Settle.

Catabrosa aquatica. Near Austwick Bridge.

Aira cæspitosa. Common in meadows about Settle, as in Settle Jugs. Ditch-side opposite Commock.

Aira flexuosa. Hills near Giggleswick Tarn. Peart Craggs, etc. Ingleborough.

Aira caryophyllea. Long Preston Moor. About Giggleswick Limekilns, and on right-hand side between Little and Great Tarn, with *A. præcox.*

Aira præcox. With *A. caryophyllea* as above. Left-hand side of road between Long Preston and Swindon.

Holcus mollis. Wood above Force, near Stainforth. Lund's Wood near Stackhouse. Holling-hall Wood.

Arrhenatherum avenaceum. Kelkowe. Ribble-side, etc.

Melica uniflora. Kelkowe, a little east of the Cave, Lund's Wood. Cavehole wood under Scar. Very plentifully in Major Spring's wood, near Ingleton Bridge.

Melica nutans. Lund's Wood, Stackhouse. Kelkowe. Cavehole Wood, etc.

Molinia cærulea. Near Giggleswick Tarn. About the banks of the osier-grounds near Foredale.

Sesleria cærulea. Kelkowe. Malham Cove, and other limestone rocks about Settle, very frequent.

Glyceria aquatica. In a ditch in the corner of a field right-hand side of the foot-road going to Rathmell, almost opposite Holling Hall.

Sclerochloa rigida. Roadside near Giggleswick Limekilns, and among stones. Ditto near the ebbing and flowing well.

Poa alpina. Ingleborough; rare, two or three places, viz. on the right going down Foalfoot; and on the north-east rocks, near *Saxif. aizoides;* and also in several almost inaccessible places on the north-west side.—I first met with this grass (previously, I think, not found in England) on Ingleborough, plentifully, in the year 1802; being on that occasion accompanied by my late much-valued friend, Thomas Williams Simmonds, whose life, devoted to natural history, would, had it been spared, have conferred inestimable service to science.

Poa nemoralis. Kendall's Gill. Cavehole Wood. Major Spring's, etc.

Poa nemoralis, var. γ, *glauca.* Rocks on the right-hand side descending Foalfoot, and chiefly on the middle ridge.

Triodia decumbens. Near Giggleswick Tarn. Field above Major Spring's. Kelkowe. Roadside above Holling Hall.

Festuca ovina. Common—as on Peart's Crags, Lord's wood, etc.

Festuca vivipara (Smith), *ovina,* var. *β, vivipara* (Bab). Ingleborough and Penyghent. (Fountain's Fell, *J. Tatham.*)

Festuca duriuscula (Smith), *ovina,* var. *δ, duriuscula* (Bab.). Very common in meadows, as in Settle Jugs,—near Attermire Cove, etc.

Festuca gigantea. Under many stone walls betwixt Settle and Giggleswick. Gardiner's Lane. J. Lund's wood. Below the bridge at Kirkby Malhamdale, etc.

Festuca elatior. Ribble-side, betwixt Bridge and Birkbeck's Weir, and Ribble-side, at Lund's wood, near Stackhouse.

Festuca elatior, var. *loliacea.* Settle Jugs.

Festuca elatior, var. *pratensis.* Batty Croft, etc.

Brachypodium sylvaticum. Lund's Wood, Stackhouse, Holling-hall Wood, etc. Wood below the bridge at Kirkby Malhamdale.

Brachypodium pinnatum. Cavehole Wood, amongst the stones near *Lithospermum officinale.* Giggleswick Scar, under a wall, the side next Stackhouse.

Bromus asper. Mill Island, Lund's Wood, Malham Cove, etc.

Serrafalcus commutatus. Edge of a ditch near Holling-hall Wood.

Avena pratensis, and var. *γ, alpina.* Not uncommon about Settle, as at Gordale, Giggleswick Scar, Highhill, etc.

Avena pubescens. Meadows; very common.

Avena flavescens. Common in meadows, etc., and on Giggleswick Scar.

Hordeum sylvaticum. Wood at Malham Cove. Wood between Settle and Stackhouse. Amongst stones near Kelkowe Cove, with *Brachypodium sylvaticum.* Mill Island.

Triticum caninum. Many places about Settle, as on the banks of the Ribble below Settle Bridge, Mill Island, etc.

Montia fontana. In several places about Settle, as in Mitchell's Lane, and at the foot of Peart's Crags, etc., often with *Ranunculus hederaceus.*

Scabiosa Columbaria. In limestone pastures, frequent, as by Giggleswick limekilns. In a field above Upper Settle, etc.

(*To be continued.*)

A Visit to Wyre Forest, *Worcestershire. By* T. W. Gissing.

I propose to give a list of some of the rarer plants found in Wyre Forest during a visit in June last; but before so doing I would refer to a former visit, in July, 1854. On that occasion, as on the present, we were accompanied by the veteran botanist of the district, Mr. Jorden, of Bewdley, the discoverer of many of the rarer plants of that neighbourhood. In 1854, after wandering about for some hours, we came upon the "great bog," and here it was Mr. Jorden's good fortune to discover a single plant of the rare Neottia æstivalis, hitherto known in only one locality in England—the New Forest, Hants. The plant found was not in full flower, and we vainly searched for more, as did another party of botanists a week or two later. This year our visit was too early to hope to find it, and the season being a good month behind added to this difficulty. We were not disappointed; but I hope it may yet be found there again. Without a guide it would be most difficult to find the bog, as the paths of the forest are so very intricate, and in some cases obscure. We likewise on both occasions visited the celebrated "Old Sorb Tree," the only one in England. I am sorry to say it now seldom flowers, and is fast decaying, as much through the heedless rapacity of visitors as from old-age: in a very few years no vestige will be left of this once fine old tree and botanical rarity. I enclose with this a rough sketch of it as it was in June last, thinking that if it were engraved it would be a suitable record of the *Pyrus domestica*, and, incorporated in the 'Phytologist,' will be acceptable to all readers.

I will now give a list of the rarer plants found:—

Clematis Vitalba.
Aquilegia vulgaris.*
Fumaria capreolata.
Thlaspi arvense.
Lepidium Smithii.
Cardamine impatiens.
Turritis glabra.
Viola palustris.
,, odorata, *var.* alba.
Viola hirta.
Drosera rotundifolia.
Sagina apetala.
Spergularia rubra.
Malva moschata.
,, rotundifolia.
Tilia parviflora.
Hypericum Androsæmum.
,, quadrangulum.

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* Any botanist who has visited Wyre Forest will never again doubt the true wildness of the Columbine.

Hypericum humifusum.
„ pulchrum.
„ hirsutum.
„ montanum: on Blackstone Rock, below Bewdley.
Erodium maritimum: Habberley valley.
Geranium sylvaticum.
„ pratense.
„ dissectum.
„ columbinum.
„ lucidum.
„ sanguineum.
Oxalis stricta: naturalized.
Euonymus europæus.
Rhamnus Frangula.
Genista tinctoria.
Lotus major.
Ornithopus perpusillus.
Orobus tenuifolius (*Roth*).
Rubus saxatilis.
„ cæsius.
Rosa villosa.
„ Fosteri (*Sm.*).
„ arvensis.
Pyrus Malus.
„ torminalis.
„ Aria.
„ Aucuparia.
„ domestica: the one solitary tree.
Epilobium roseum.
Bryonia dioica.
Scleranthus annuus.
Torilis infesta.
Viscum album.
Viburnum Opulus.
Galium tricorne.
Asperula odorata.
Fedia dentata.
Serratula tinctoria.
Carduus acaulis.
Filago minima.
Solidago Virgaurea.
Doronicum Pardalianches: by a ditch-side a little below Bewdley.
Inula Conyza.
Campanula patula.
„ latifolia.
„ Trachelium.
Jasione montana.
Erica Tetralix.
„ cinerea.
Calluna vulgaris.
Vaccinium Myrtillus.
Pyrola media (Mr. Jorden).
„ minor.
Veronica scutellata.
„ officinalis.
„ montana.
„ Buxbaumii.
Pedicularis sylvatica.
„ palustris.
Salvia Verbenaca.
Origanum vulgare.
Ajuga reptans, *var.* alb.
Lamium amplexicaule.
Stachys Betonica, *var.* alb.
Scutellaria minor.
Lithospermum officinale.
„ arvense.
Anagallis tenella.
Plantago media.
Polygonum Bistorta: meadow by the Severn.
Euphorbia exigua.
Humulus Lupulus.
Quercus Robur.

Quercus intermedia.
Betula alba.
Neottia æstivalis : margin of the great bog.
Listera Nidus-avis.
Listera ovata.
Epipactis palustris : great bog.
,, ensifolia : near the old Sorb-tree.
Orchis Morio.
,, pyramidalis.
,, maculata.
Gymnadenia conopsea.
Habenaria chlorantha.
,, viridis.
Hyacinthus nonscriptus, *var.* alb.
Convallaria majalis.
Tamus communis.
Triglochin palustre.
Juncus squarrosus.
Luzula congesta.
Scirpus sylvaticus.
Eriophorum latifolium.
,, angustifolium.
Carex pulicaris.
,, stellulata.
Carex ovalis.
,, curta.
,, muricata.
,, cæspitosa.
,, flava.
,, pallescens.
,, fulva.
,, sylvatica.
,, glauca.
,, pilulifera.
Avena flavescens.
Melica uniflora.
,, nutans.
Molinia cærulea.
Aspidium aculeatum.
,, lobatum.
,, angulare.
Lastrea Oreopteris.
Blechnum boreale, bifid and trifid varieties.
Botrychium Lunaria : in Habberley valley for some years.
Equisetum Telmateia.
,, sylvaticum.
,, palustre.
,, limosum.
,, hyemale.

Salisbury, Sept. 19, 1855.

Tragopogon minor.

Sir,—Will some of your correspondents oblige me with a few stations for *Tragopogon pratensis ?* This is the species in which the *involucres and the florets are of equal length,* and is generally described as common; whilst *Tragopogon major,* in which the *involucre considerably exceeds the florets in length,* is described as rare.

Nothing that I have seen about London, but belongs to this last species (*major*), and at this moment I cannot bring to my recollection that I ever saw the first (*pratensis*).

I send you a few extracts which may be useful. Yours truly,

BOTANICUS.

1. *Tragopogon* calycibus corollæ radium *æquantibus* (*pratensis*). —*Hull's Flora Anglica,* 1762.

2. *Tragopogon pratense.* Pericline as long as the flowers in the circumference.—*Gray's Nat. Arr. of British Plants,* 1821.

3. *Tragopogon pratensis.* Involucre about as long as the corolla.—*Loudon's Ency. of Plants,* 1829.

4. *Tragopogon pratensis.* Calyx as long as the rays of the blossom. Mr. Woodward remarks that *the calyx invariably exceeds the blossom.—Withering,* 1830.

5. *Tragopogon pratensis,* Linn. Involucre about as long as the corollas.—*T. major,* Jacq. Involucre more than half as long again as the yellow corollas. Stations: Eccles, banks of the Tweed at Bingham, on authority of Dr. Johnson. Dr. H. remarks: "The observations and specimen with which Mr. Thomson has favoured me, have satisfied me that it is the *T. major* of 'Flora Austriaca,' a native of Germany, Austria, and Switzerland. It grows abundantly in the station above given, while the *T. pratensis* is found nowhere in the country.—*Hooker's Brit. Flora,* 3rd edit. 1835.

6. *Tragopogon major,* Norfolk?, York, Durham, Northumberland. P. 345: "The only species in the neighbourhood of Newcastle and in the north of England." P. 132: shady hedges, not uncommon. (*Hist. Yarmouth.* MS. Flora of a portion of Norfolk and Suffolk.)—*Trag. pratensis,* L., *b, minor,* Fries. This variety is frequent. I never saw anything answering the description of *pratensis.—Watson's New Bot. Guide,* 1835.

7. *T. pratensis.* Calyx about equal to the corolla.—*T. major,* Jacq. Austr. Calyx more than half as long again as the yellow corollas. Pastures in the north, rare.—*Compend. of Eng. Flora, by Dr. Hooker,* 1836.

8. *T. pratense.* Leaves of the involucre equal in length to the florets, p. 150.—*T. major.* Involucre half as long again as the yellow corollas. Several stations in the north, p. 270.—*Irvine's London Flora,* 1838.

9. *T. pratensis,* L. Involucre about as long as the corollas.

β. Involucre longer than the corollas.—*T. major,* Jacq.—*T. minor,* Fries.—*Hooker's British Flora,* 5th edit. 1842.

10. *T. minor,* Fries. Involucre about twice as long as the florets. Meadows and pastures.—*T. pratensis,* L. Involucre equalling or shorter than the florets. Less frequent than the preceding.—*Babington's Manual of Botany,* 1847.

11. *T. pratensis.* Involucre about as long or twice as long as the corollas. *α.* Involucre about as long as the corollas. *β.* Involucre twice as long as the corollas.—*T. minor,* Fries.—*T. major,* Hook. Brit. Flor. 2nd edit. (not perhaps of Jacq.)—*Hooker's Brit. Flora,* 6th edit. 1850.

The above will, I think, satisfy you that the matter is not completely settled, and that a little inquiry is not altogether unnecessary. I have a specimen from a celebrated Botanist, labelled "*Trag. major,* near Newcastle," which was given to me at least twenty-five years since.

London, August 21, 1855.

Note on TRAGOPOGON.

Our acute correspondent quotes 'Hull's Flora Anglica' for Hudson's work. Hull's Flora is of a more recent date than Hudson's.

Withering's account is, "Calyx in specimens gathered in Huntingdonshire always exactly equal with the blossom,—in Norfolk invariably exceeding it: are they not distinct species?" Woodward, edit. 1796.

Smith, in 'English Flora,' vol. iii. p. 337, probably described a Norfolk form, which appears to correspond with *T. major* of Jacq. and *T. minor* of Fries.

T. pratensis is generally described by English, French, and German botanists as having the bracts of the involucre about as long, or slightly longer than the ray florets; and *T. major* as having the same organs about double the length of the florets.

This last form is the common form of the plant about London, as our correspondent states. We should be obliged to any correspondent for a specimen of *T. pratensis,* the form or variety having the ray florets as long as the involucral bracts.

We beg to quote from an early number of the 'Phytologist' the opinion of Mr. Babington, who appears to have clearly understood the two species or forms. "*Tragopogon pratensis.* I have not the slightest doubt that the *Tragopogon* noticed by Messrs. Irvine and Pamplin at Cobham (Phytol. p. 36) is the *T. pratensis* of Linnæus and Smith, Eng. Bot. t. 434. It is far from being a common plant in England; indeed the only specimens that I have seen are from Sussex (Framfield) and Suffolk (St. Peter's, Southelmham); and it appears to be totally unknown to the majority of English botanists. The more common *Tragopogon* is, I think, the *T. minor* of Fries, as was pointed out several years ago by Mr. Leighton.—*C. C. Babington, St. John's College, Cambridge, Oct.* 16, 1841."

This is the only station for *Trag. pratensis* that we know. It is a little beyond the village of Cobham, on the outskirts of the park, half a mile before the pedestrian botanist, *viâ* Cobham, reaches the station where *Salvia pratensis* and *Althæa hirsuta* grow.

Some Botanical Notes made during a Tour through a part of Ireland in June and July, 1855, *with occasional Remarks on Scenery, etc., in a Letter to the Editor. By* JOSEPH WOODS, F.L.S.

(*Continued from page* 127.)

On the 29th we took a carriage to Castletown Berehaven. There is a mail car, but as there were five of us, we took our own time and a more convenient carriage. I had a letter to Dr. Armstrong, and Mr. Allman was personally known to him, but unfortunately he was out. We imagined that if there were a druggist in the place we might perhaps learn from him the situation of *Spiranthes cernua*. There was no druggist, but a person attends twice a week at the dispensary to furnish drugs and make up prescriptions. I found afterwards that this is a common arrangement in the Irish villages and smaller towns, the attendance being sometimes two, or frequently three times a week. At Glanbeigh there is, in addition to the times of attendance, a notice that persons who attend *will* be vaccinated; whether with or without their own consent it does not say. We walked a little way along the shore on the same evening, and found on a grassy point *Ophioglossum vulgatum*.

Dr. Armstrong called upon us in the evening, and the next morning took us to the station of *Spiranthes cernua*. It is not in a saltmarsh, as has been said, nor near a saltmarsh, for there is no such thing in the neighbourhood, but on a meadow sloping towards Berehaven. The soil is somewhat springy and somewhat peaty, as is witnessed by the presence of *Hydrocotyle vul-*

garis and *Anagallis tenella,* but at the same time we are surprised to find these plants in so dry a position. We were too early for it, but managed to ascertain it in its young state; and Mr. Allman writes to me that it has flowered beautifully in his garden. Like the *Trichomanes,* this plant seems in danger of extermination, but from entirely different causes. The meadow where it was first found has been pared and burned, and all traces of the plant have disappeared. On another place some fishermen obtained liberty to spread their nets, and the plant was thus destroyed. A quantity of the coral-sand which is much used for manure in this district was heaped up on a third more limited station. Dr. Armstrong says that from time to time he observes it in new positions, so there is still some hope for its permanence.

In some lakes on the way to Castletown we noticed abundance of the *Lobelia Dortmanna* and of *Cladium Mariscus. Nymphæa alba* is common in the pools throughout this part of Ireland, but I did not anywhere see *Nuphar luteum.*

On Sunday I walked to the upper inn, and to the very small church which is just by it, returning by a deep woody and rocky glen. I got *Botrychium* in the way, and *Carex lævigata,* which I also observed in many other places in the south-west of Ireland. On the 2nd of July we descended by a boat to some caves, where the *Echini,* and especially the *E. lividus,* are very plentiful. Bantry is rich in marine productions. *Crithmum maritimum* is abundant on the rocks, and I found in one or two places a small quantity of *Carex punctata,* which, is I believe, a novelty to the Irish flora.

The next day I left Mr. Smith, who was preparing to examine a district with 365 lakes, and returned by the mail cart to Kenmare, proceeding thence immediately to Sneem, where I again found *C. punctata* in greater plenty. Some of the views over the Kenmare estuary towards Hungry Hill and the adjoining mountains are very fine, but in general the ride will hardly be called interesting by those who have just visited Killarney and Bantry Bay. I slept at Sneem, and found that I might have slept also at Waterville, but I was not tempted to do so, as Waterville has little interest unless we could give up a day to Curraun Lake and its neighbouring mountains, which I suppose have the merit of being hitherto unexplored by botanists. Nor far from Waterville is a considerable tract of sand, which can hardly be said to rise into sand-hills. The nearer part, which alone I visited, was very unproductive. *Triticum junceum* is found, I believe, in all such places in the south of Ireland; but the most characteristic plant is the *Iris Pseudacorus*, which is scattered about in tufts over the sand, the only marked tufts of vegetation to be seen upon it. If the hint thrown out by Withering, that the seeds of this *Iris* would be a good substitute for Coffee, the south of Ireland could furnish it in abundance.

The whole western side of Ballinskeligs Bay was covered with a thick and well-defined white mist. It looked like cotton-wool, or perhaps still more like a vast mass of *Boletus lachrymans*, and when I got to the ferry I could see no trace of the island of Valentia.

Valentia boasts a very comfortable inn, and the charges are more than moderate, they are exceedingly low; otherwise I cannot say much for Valentia, yet the shores are well varied, and the mountains in view, if not of the first rank, are of very respectable elevation. Culleen is marked on the semi-ordnance map of 1839 as 2231 feet in elevation, and to the eye, both on this side and from Glanbeigh, Drung, and Coomlancaran, appears to be higher. There are several plants, rare elsewhere, which are found abundantly in the south of Ireland: most of these extend into Valentia, but the *Pinguicula grandiflora* does not, any more than the *Arbutus Unedo.* My only prize was *Agrimonia odorata,* of which there is a considerable quantity by the side of an old road near a seat of the Knight of Kerry. *Anthyllis Vulneraria* varies not only with the mixed flowers of purple which we find in many places, but also with some altogether of a bright rose-colour, and very beautiful.

I went here into one of the apparently out-of-the-way National schools, but it seems that it is well situated on what is a central position on the island. It was most inconveniently crowded, but, as well as I could judge from a very short visit, it was in a very satisfactory state, both as regards the master and the scholars. The latter were all Roman Catholics, but the books lying about were exclusively those of the National Society.

The mountains of the promontory of Dingle form a fine object from the northern side of the island when they are free from clouds, but this happened only one day during my stay there.

On the 8th of July I left Valentia, and proceeded in the mail cart from Cahirciveen to Glanbeigh. The ascent along the valley would be very pleasant if it were not so naked; but in the second part of the ride the view across Dingle Bay, and of the mountains which bound it, is truly magnificent. The third part, descending another fine valley to Glanbeigh, is also pleasant. The inn is not properly at Glanbeigh, although within the district so called, but at Rossbeigh, about half-way between the Glen Bay of the map and Carra. The immediate neighbourhood has nothing to recommend it, but in fair weather the mountains beyond the bay form a noble object. I walked in the evening to the range of sand hills which separate Castlemaine Haven from the open waters of Dingle Bay, where a thunder-storm overtook me and gave me a thorough wetting. The plants were only *Triticum junceum, Euphorbia Paralias, Alsine peploides,* and other marine plants still more common. Castlemaine harbour abounds in a small *Zostera,* which is however, I believe, only a variety of the common one. The district between Castlemaine harbour and Rossbeigh yielded me nothing; it is, like a great deal of this neighbourhood, a bed of gravel covered with a skin of peat. Where the peat remains it may not form the best of soils, but in these circumstances it produces something; and I see upon it at times very promising crops of oats and of potatoes, but the bared gravel produces nothing. On talking to a farmer on the road he said the only way to reclaim such land was to remove most of the peat, and turn up the gravel to a considerable depth, adding at least a hundred barrels of lime to the acre. The mention of barrels shows that the lime must be an expensive article.

(To be continued.)

New Station for Lecanora rubra, *Ach.* (Lichen Ulmi, *Swartz*).

By Geo. Dixon, of Ayton, near Stokesley, Yorkshire.

Anxious to visit the oolitic formation of Yorkshire, hoping the limestone of that series would yield species of Lichens not to be met with on our Cleveland lias, or the basaltic dyke that runs through it, I proceeded, a few weeks ago, in company with my friend W. Mudd, down Bilsdale, to the magnificent ruins of Reivaulx. We were both much disappointed in our expectations;

for as soon as the oolite came on, the paucity of species common on the lias was most striking, and we at once saw the superiority of our own district over the one we had just entered. However, we felt amply rewarded for our journey by discovering on old Elm-trees, on the margin of the Rie, the elegant Lichen *Lecanora rubra*. In all our correspondence and exchanges of specimens it had not before come into our hands, from which we were led to conclude it was extremely local. As the figure in 'English Botany,' t. 2218, is from a specimen found by W. Borrer on the bark of old Elm-trees near Greta Bridge, Yorkshire, and W. J. Hooker giving the same locality and authority, I forwarded the former gentleman a specimen, and received from him the following kind note:—

"I am glad to see *Lecanora rubra* from a new place. I have not a duplicate left of my own gathering, nor have I ever met with the species again since I found it near Greta Bridge, in 1810, unless some patches of thallus, without apothecia, on Elms, near Malvern. I cannot direct you to the *one* tree on which I saw it in 1810: I only know that it was in a hedge near a footpath by which I was walking from the inn at Greta Bridge to the bridge over the Tees by Eggleston Abbey. In a visit to Greta Bridge a few years ago I sought for the place in vain, not finding even the footpath. My other British specimens of this Lichen are two morsels from Dickson, marked by him '*Lichen marmoreus, on wood;*' and another morsel from Mr. Salwey, '*on decayed moss, from Wigmore Castle, Herefordshire.*' I thank you for the specimen."

My object for inserting this is not only to record the locality, but to ascertain whether it has been met with by any other botanists; if so, I shall be most happy to exchange specimens with them.

Since the Lichens of Cleveland were recorded by my companion many other species have been met with, among which are several entirely new. I am glad to find it is his intention to give to the readers of the 'Phytologist' his discoveries. It will then be seen that this district, so long neglected by botanists, is the richest in the kingdom.

Reviews.

On the "Cinchonaceous Glands" in Galiaceæ (Stellatæ), *and on the relations of that Order to* Cinchonaceæ. *By* George Lawson, F.R.P.S., F.B.S.E., Demonstrator of Botany and Vegetable Histology to the University of Edinburgh.

The author of this Paper has discovered that stipulary glands are not confined to the Section of *Rubiaceæ* inhabiting chiefly the tropical or warmer regions of the earth, and which are remarkable for the beauty of their vegetation, as well as for their valuable dietetic and medicinal products, but finds that these peculiar secretions are present in the meaner and less useful portion of the Order, viz. in *Stellatæ,* which inhabits the colder regions, and is neither distinguished for much beauty nor utility. *Asperula odorata* (common Woodruff) yields a very fragrant and very permanent odour,—whether depending on these glands or not our author does not inform us. We are obliged to him for directing our attention to the fact that glands exist on all the Galiaceous plants which he, the author, examined in a fresh or recently collected state, and he presumes, not unreasonably, that glands exist in all plants of the Order. He further tells us that the glands which are present only on the stipules of the *Cinchonaceous* portion of *Rubiaceæ* are present on all the foliaceous organs (leaves) of *Stellatæ.* Hence he infers that as glands characterize the stipules in *Cinchona,* etc., glands will characterize stipules in *Stellatæ;* or, in other words, that the leaves of Stellate plants are not leaves but stipules, and that *Stellatæ* (Galiaceæ) *are leafless plants with whorls of stipules.* Our author suggests that this view may be less objectionable than those either of Dr. Lindley, De Candolle, or Mr. Bentham; but candidly admits that he does not see how it could help us out of the difficulty. We are not disposed to grapple with what is admitted to be a difficulty by the eminent botanists just named; and besides this, the object of our Journal is to supply our readers with a history of facts, not of opinions. We are delighted to publish discoveries of facts, and Mr. Lawson's paper announces the fact that glands are present on the leaves of *Stellatæ,* and that these glands are similar to those on *Cinchonaceæ.* But the theory of the identity or the distinctness of these two groups, or, in other words, the existence of one or two orders of plants formerly comprehended under the term *Rubiaceæ*, we leave to the eminent systematists to whom our author refers us: who shall decide "when doctors disagree"? We wish our readers to judge for themselves.—We have received with the above another paper, on the colouring matter of the flower of *Strelitzia reginæ*, by the same author, in which we are informed that the xanthic (yellow) and cyanic (blue) (we translate these terms for the benefit of our junior readers) series of colours are presented in the same flower. In the blue part of the flower Mr. Lawson found the colouring matter, consisting of spherical granules, of an intense blue or bluish-purple colour, with occasional cells containing similarly-shaped granules of bright crimson. Also that in the yellow part of the flower the colouring matter appeared in slender filaments, instead of spherical granules. This is a very interesting subject, and we are glad to give publicity to observations which increase the number of facts known in reference to one of the *arcana* or secrets or mysteries of nature. We hope to return to this topic, the colours of flowers, on a future occasion, and in the meantime we will be obliged to our correspondents for the results of their observations on this subject.

Notes and Queries: a Medium of Intercommunication for Literary Men, Artists, Antiquaries, etc. No. 294.

We are induced to notice the above-mentioned number of this most useful periodical, which has been sent us by a friend, because it contains an article entitled "*Notes on Trees and Flowers,*" of which the following is an account:—

> Several queries from time to time on this interesting subject have appeared in '*N. & Q.*' [these initials are representative of the publication from which we take this extract], relative to books which treat of it; and I am in hope that the following Notes from a commonplace book may interest some of your readers, and elicit much additional information from correspondents who have more leisure and opportunity than myself.

The author of this paper, which is too long for our Journal, divides his subject as follows:—

> Flowers and trees dedicated to deities: example, Oak to Jupiter, etc.
>
> Flowers and trees that bear the name of their original home, etc.: Barberry.

Flowers that have given surnames to families: *Pine*, *Primrose*, etc. Christian names: *Flora*, *Laura*, *Lilian*, *Rhoda*, etc. Names of places: *Botany Bay*, *Oakham*, *Appleby*, etc.

Those that have been adopted as national emblems: for example, *Rose*, *Thistle*, *Shamrock*, *Lily*, etc. Objects of curious legends, as *Anemone*, *Narcissus*, etc.

Others have given rise to parables and similes, as Trees electing a King, *Heath* in the Desert, *Tares*, *Mustard*, etc.

Symbolical plants: *Vine*, *Lily*, *Olive*, *Palm*, etc.

Such as have many interesting associations, as *Orange Flower*, *Willow*, etc.

Names of plants derived from birds, as *Henbane*, *Duckweed*, *Canary-grass*, etc.; from beasts, as *Horse-mint*, *Foxtail*, *Bearsfoot*, *Cowslip*, *Gooseberry*, etc.; from insects, etc., as *Bee Orchis*, *Toadflax*, *Viper's Bugloss*, etc.

Some still more curious, as *Widow's-wail*, *Gipsywort*, *Buttercup*, *Bachelor's Buttons*, etc.

Some pleasing and elegant: these are *Poor-man's Pepper*, *Shepherd's-purse*, *Haymaids*, etc.

Some are derived from the calendar of the Church and sacred seasons, etc., as *Herb Trinity*, *Virgin's Bower*, *Our Lady's Slipper*, *Lady's Mantle*, *Lady's Tresses*, etc.

We have not room for more, but we recommend the article to our readers, promising a more elaborate paper on this subject when we have leisure. In the same number we read a version of the following proverb, which, we think, is new to us, viz. "If the Oak is in leaf before the Ash, we shall have a good harvest." Materials for an article on botanical proverbs are in the course of collection, and in this we shall have occasion to notice this proverb and its various forms.

A Classified List of British Mosses; compiled by GEORGE DIXON, Great Ayton, near Stokesley, Yorkshire, from Wilson's 'Bryologia Britannica.' The varieties to which only the Greek letter is attached in W. Wilson's work, are distinguished in this Catalogue by having the Greek letter spelt out thus: "Beta," "gamma," "delta," etc.

We have run our eye over this Catalogue, a very good and clear one indeed, and we have not detected above twenty-five varieties distinguished by the Greek letters. There are hundreds of varieties in the work, and they are all, we believe, duly catalogued, but few of them are designated by α, β, γ, δ, ϵ, etc. They have names like species, such as *brevifolium, cuspidatum, crispa, pumila,* etc., a much more laudable practice than the more ancient method of prefixing these hieroglyphical marks. As the author of the Catalogue quoted above seems to lay stress on this part of his plan, we have much pleasure in giving it publicity. Also in the name of the muscologists of Great Britain we tender him our cordial thanks for his Catalogue, a most important auxiliary to all who have specimens to borrow, lend, or exchange. This list has the generic name in full repeated before every species; also the authorities for both species and varieties are given, so as to be really serviceable. The Catalogue is very creditable to the diligence, care, and learning of its compiler.

A Classified List of British Mosses. Published by J. J. Packer, Thirsk. Compiled from Wilson's 'Bryologia Britannica.'

This Catalogue is also carefully compiled, but it is not quite so full as the above-mentioned one. It does not include the varieties, and the genera are not so prominently displayed as they are in Mr. Dixon's list. We have also noticed *augustatus* for *angustatus,* a common typographical error; also *fasiculare* for *fasciculare,* as the term is or ought to be written, being derived from *fascis,* a bundle; also *androgynun,* instead of *androgynum.* These blemishes we trust will not appear in a second impression. While on the subject of literal criticism, we beg to advert to the nature and etymology of specific names. On these the practice of good writers is not uniform. For example, some authors write with initial capitals all specific names, when adjectives, if these are derived from proper names, whether of persons or places. Others write the same names or words without capitals. In the two lists before us we have *Dicranum Grevilleanum* and *D. Scottianum.* We have also *Primula scotica* and *Euphorbia hiberna* in Mr. Babington's 'Manual of British Botany' (the specific names are printed without initial capitals). Yet all these are adjectives. Mr. Babington also writes *C. Ehrhartiana* and *C. Boeninghausiana* (*Boeninghauseniana*), although these are adjectives derived from names of persons. We would suggest that all specific names, when adjectives, whether derived from names of persons, places, or things, should be written with small letters, and that when they are substantives they should have initial capitals, as *Dicranum Schraderi.* This would promote uniformity of nomenclature, an object of some importance.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Botanical Society of Edinburgh.—At a recent meeting of this Society a paper was read on the Flora in the neighbourhood of Castle Taylor, in the county of Galway, by A. G. More, Esq., Trin. Col., Dublin. From this paper, as reported in the 'Annals and Magazine of Natural History,' we notice that several subalpine species of British plants grow in the west of Ireland, at or near the coast-line; for example, *Dryas octopetala, Saxifraga hypnoides, Hieracium cerinthoides, Arbutus Uva-ursi,* and *Juniperus nana.* The writer points out the following species seen by him, but not marked as Irish in Babington's Manual, viz. *Cardamine sylvatica, Viola stagnina, Spiræa Filipendula, Geum intermedium, Myriophyllum alterniflorum, Hieracium cerinthoides, Epipactis media, Potamogeton lanceolatus, Alopecurus agrestis, Lolium italicum.* We opine that this list might be extended, but to little purpose. At a subsequent meeting of the same Society, Dr. Balfour made some very interesting remarks on *Megacarpæa polyandra,* Benth., an abnormal genus of the *Cruciferæ,* but probably more interesting from its economical uses and its distribution. It is found on the northern side of the Himalayas in British India, and from thence through Thibet, Turkestan, and Siberia, to the regions of the Caspian Lake. Its range of temperature is considerable, for in all these vast regions the summer heat is very great, and the winter's cold is very severe. We beg leave to ask our readers if it has been cultivated or is cultivable in Europe? If so, it might be used either as an esculent or a condiment, or as both. The root is eaten by the Indian mountaineers; its green shoots are said to be excellent fodder, and they are the chief support of the camel in his wearisome passage through the sandy deserts and dreary steppes of these tracts.

In the August number of the 'Annals and Magazine of Natural History' there is a report on the organization of the pedicellate glands of the leaf of *Drosera rotundifolia,* to which paper we beg to refer such of our readers as are desirous of information on this curious subject. In the same number there is an account of a new organ observed in *Callitriche* (*C. platycarpa,* etc.).

Notes on Irish Plants by H. Lhwyd; from the Philosophical Transactions, 1713.—(*Lhwyd to Dr. T. Robinson.*) "In the same neighbourhood (Sligo and Bali Shany) on the mountains of Ben Bulben and Ben Buishgen, we met with a number of the rare mountain plants of England and Wales, and three or four not yet discovered in Britain. Mr. Heaton's *Chamædrys alpina* is a common plant on these hills, and is also on divers other mountains and heathy grounds in Connacht and Munster. In the Isle of Aran, near Galloway, we found great plenty of the *Adiantum verum,* and a sort of matted Campion with a white flower, which I bewail the loss of; for an imperfect sprig of it was only brought me, and I waited afterwards in rain almost a whole week for fair weather to have gone in quest of it. In most of the mountains of Galloway and Mayo grows an elegant sort of Heath, bearing large thyme-leaves, a spike of fair purple flowers like some *Campanula*, and viscous stalks;—I know not if it be anything related to the *Cisti Ladaniferæ*. In the same places *Pinguicula flore carneo minore* is a common plant, and a sort of *Ros-Solis*, which I take to be undescribed. *Sedum serratum foliis pedunculis oblongis insidentibus* is exceedingly common on all the mountain tracts of Mayo, Galloway, and Keri. On the mountains of Keri *Sanicula guttata* grows in abundance, together with some other rare plants, as the *Arbutus*, *Cotyledon hirsuta*, etc. But the Tories frustrated our curiosity here, though nowhere else in the kingdom. *Pentaphylloides fruticosa* we found plentifully amongst limestone rocks, on the banks of Loch Crib, in the county of Galloway; and Dr. Merret's *Vaccinia rubra foliis Myrtinis crispis* (a very beautiful plant) we found to be no rarity in this kingdom.

Colchicum autumnale.—I can guarantee one (at least) Suffolk habitat for *Colchicum autumnale*, which is in a meadow about half a mile from Framlingham, on the north side, or Badingham road. In this (Worcester) district it is particularly abundant. T. W. GISSING.

Blackheath Station for Scilla autumnalis.—Plants noticed on Blackheath, Greenwich, September 5th, 1855:—*Geranium pratense* and *G. rotundifolium*, *Koniga maritima*, *Jasione montana*, *Medicago denticulata*, and *M. minima*. These were all located at the east end of the old gravel-pit towards Charlton. *Scilla autumnalis* was brought to us from the same station by Mr. W. F. Helmsley. We do not vouch for the nativity of *Koniga maritima*, though it had certainly grown here. The other plants were well established, but not plentiful, with the exception of *Geranium rotundifolium*, which abounds there. E. J., *Chelsea.*

Cochlearia officinalis.—Is *Cochlearia officinalis* an annual plant in mountainous or alpine places?

Vicia lævigata.—Has this plant been recently noticed on the beach at Weymouth? Any information respecting its history will be acceptable.

Impatiens glandulifera.—We have been informed that a *Balsam* twice as tall as the *Impatiens fulva*, with a stem as thick as a common broom-handle, grows on the Colne between Harefield and Denham. We were also told that mine host of the Swan, at Denham, knows the plant and its locality. Will any of our readers residing near the Colne verify this, and send us a specimen of the plant in question? We had our information from the keeper of Old Park Woods, Harefield.

Erysimum cheiranthoides.—The vertical range of this species is stated in the 'Phytologist' for September, to be 0–100 yards, that is, from the coast line to the altitude of 100 yards. The plant however grew plentifully in a turnip-field near the summit of the Clent Hills, Worcestershire: these hills are stated to be above 1000 feet high. The plant is found here and there on the banks, or rather under the hedges on the banks, but in the turnip and potato fields it is very abundant. J. A., *Stourbridge.*

Acer campestre.—In a wood called Fairfield Wood, in the parish of Belbroughton, Worcestershire, there are several trees of this species; not bushy shrubs, such as they generally are, but trees of considerable thickness of stem, and loftier than the Elderberry-trees, which also grow there. Elm and Maple are uncommon hedge-shrubs in this part of the country.

Acer Pseudo-platanus.—This tree grows on the Lickey Hills, near Birmingham, at an elevation little short of 1000 feet. A. J., *Clent.*

Hops.—"Strong cloth is made in Sweden from the stalks of this plant, which for that purpose are gathered in autumn, soaked in water all the winter, and in March, after being dried in a stove, are dressed like flax." This might to some extent be available in the present scarcity of paper-making materials. The stalks of the hops are only used at present for fuel.

Lolium temulentum is a poison, and a deadly one too, if taken in sufficient quantity, more especially as hot food, as I have proved in my own experience. Believing however that Nature never yet caused a plant to grow not calculated, if properly used, to produce some good, I will now give you a fact regarding its use and application. Some of your readers may remember to have seen letters of mine written on the island of Beglim, near Wexford; some time ago I was located there, reclaiming the mud-lands for the Wexford Harbour Embankment Company. Amongst the many valuable plants produced indigenously on that fertile land, the Darnel grew more luxuriantly than ever I saw it grow anywhere else. The wheat grown there, though of the finest quality in Ireland, I could never sufficiently rid of the Darnel, and in consequence of it I was invariably cut in price by the millers of Wexford and Castlebridge. At last I hit on a man who, though he never read a word of the chemistry of Sir Robert Kane, Liebig, or Faraday, yet knew the value of the Darnel as well as any of them did, bought my wheat, giving me the highest price in the market. Fearing that he would grind it among the wheat, I gave him the results of my own experience. He smiled at my simplicity, showing me his separators, and a large quantity of the Darnel, small grains of wheat, etc., ground into meal for feeding his pigs, of which he had a score, 3 cwt. each, snoring away in his yard, as drunk as he ever was himself. His practice was to mash and ferment it, as an Englishman his malt for ale-brewing, or an Irishman his *raw corn* for potheen whisky distillation.—*Correspondent of Gardeners' Chronicle.*

Seeds grown in Moss: the substance of some experiments of planting seeds in moss lately made by Mr. Charles Bonnet, of Geneva, F.R.S. Read Feb. 18, 1747–48.—Mr. Bonnet was inclined to try whether plants were capable of vegetation when they were only set in moss, instead of being planted in the earth. With this design he filled with moss several garden-pots, and he compressed the moss more or less, as he judged the several plants he intended to plant in them might respectively require a closer or a looser soil. He then sowed in wheat, barley, oats, and peas; and he found, first, that all the grains sowed in that manner came to maturity later than those of the same sorts which were sowed at the same time in the mould. Secondly, that the stems from the several grains sowed in the moss were generally taller than those which sprang from the ground. Thirdly, there came from the grains sowed in the moss a greater number of blades than from the grains sowed in the earth. Fourthly, the grains sowed in the moss produced more plentifully than the others. Fifthly, those grains that were gathered from the produce of those which vegetated in the moss having been again sowed, some in moss, and some in earth, succeeded well in both. Mr. Bonnet also planted in moss Pinks, Gilliflowers, Daisies, Tuberoses, Tulips, Hyacinths, Jonquils, and Narcissuses, and all these plants succeeded as well as others of the same sorts which he at the same time planted in mould. He also placed in moss cuttings and layers of Vines, and these cuttings and layers became Vines; and these Vines in a short time grew larger than others that came from cuttings and layers planted at the same time in the ground.—*From the Philosophical Transactions.*

Does it accord with your experience to say that where *Gagea lutea* is to be found, there also *Lathræa Squamaria* will be, or at least not far off?

J. N.

Flowers of the Crimea.—We have a number of very beautiful plants here; their profusion, in rapid succession, grouped in mazes, is very striking; I have seen at least a hundred acres of Larkspurs and Poppies mixed, the Larkspurs five feet high; acres of yellow Centaureas; two or three sorts of *Boragineæ*, especially a beautiful *Echium.* But none of these equal the carpet of Crocuses in the spring. I have already found 42 species of *Gramineæ*, many of them peculiar species, with some few wandering Indian ones; a species of *Secale*, which has always bulb-like excrescences in whatever soil it may grow. *Triticum villosum*, *T. monococcum*, and *T. cristatum*, are all very beautiful species. The *Composites* are very pretty; one, an everlasting, has so much flower and so little leaf that it ought to be a very desirable plant for cultivation. (The flower is *Xeranthemum radiatum.*)—*Sebastopol, Aug.* 3.

Communications have been received from

Charles Howie; D. Stock; M. Atwood; James Hussey; Rev. T. F. Ravenshaw; An Irish Lady; Botanicus; T. W. Gissing; H. H.; John G. Baker; George B. Wollaston; A. G. More; C. C. Babington, F.R.S.; G. Francis; John Lloyd; H. B.; J. Windsor, F.L.S.; G., Tunbridge Wells.

BOOKS RECEIVED FOR REVIEW.

Pliny's Natural History, from 'Bohn's Classical Library.'

NOTICE TO CORRESPONDENTS.

A number of interesting communications have been received, several of which are already in type, but we must beg our Correspondents to have a little patience, as, from press of matter, some Articles which we should like to have included in this Number must stand over for the present.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Botanical Notes from the Journal of an Irish Lady.

Ireland has now ceased to be a *terra incognita* to tourists; the railroads enable people to visit the most distant parts of our lovely island with a facility and ease before unknown. Each of the four provinces presents an attraction to the admirer and seeker of fine scenery, and the entire island is rich in natural productions. In Leinster there is the county of Wicklow, with its glens and vales; nor is the least lovely of the latter the one immortalized by Moore in the lines so familiar to all readers of the 'Irish Melodies,' beginning 'Sweet vale of Avoca.' This beautiful spot abounds in *Blechnum boreale:* it is generally visited from the 'Wooden Bridge,' as it is called, which the traveller will find, as a dear English friend of mine did, when he asked the coachman, "Are we near Wooden Bridge?" "Yes, yer honour, but you'll find the wooden bridge to be a stone one!"

Ulster presents magnificent scenery on the Antrim coast, extending from Belfast to that wonder of geologists the Giants' Causeway, all of which is now fully displayed by the new line of road, which at every bend reveals some pleasing feature, now passing the ruin of an ancient castle rich in legendary lore, such as that once inhabited by O'Halloran, the bandit chief, whose exploits are so ably recorded by the talented author of 'The Collegians,' then winding at the base of vast limestone cliffs, in which are numerous caves, three of which are inhabited, one by a blacksmith, who there followed his trade. Near Red Bay the road is cut through tunnels of rock, forming a fine setting to the valleys around, of which Ossian has sung. The algologist will find much to interest him on these shores: about Cushendall Bay *Nitophyllum punctatum* has been found five feet long by three wide; at Ballycastle, nearer to the Causeway, *Delesseria sanguinea* waves its rosy fronds of a very large size, and there abounds the rare *Odonthalia dentata.*

Munster can boast of Killarney, with its far-famed lakes, to the beauty of which I believe neither pen nor pencil can do justice. To those tourists who need not economize in time or money, the first best view of the Lakes is admitted to be from the Kenmare-road. There is much to interest the botanist in the neighbourhood of Killarney: there flourishes *Arbutus Unedo,* with its strawberry-like fruit; in the woods about Ross Castle *Paris quadrifolia,* and in the same locality *Betonica officinalis* can be obtained. On the ruins of Mucruss Abbey *Orobanche minor* is found; but its peculiar charm is the ever-prized fern, *Trichomanes brevisetum.* It may not be generally known that this lovely plant will soon have ceased to exist in this its first-discovered haunt, as the guides sell roots of it for a high price.

Our fourth province, Connaught, offers to the admirer of nature the wild grandeur of a district in the County Galway, known as Connemara, or the Irish Highlands. The traveller cannot fail to be pleased with the fine outline of the twelve Bens of Benabeola, which seem to environ the town of Clifden, and which Inglis has pronounced to be worthy of Switzerland; nor less so when he enters the Pass of Kylemore, with this chain on the right, and a lake three miles in extent at their base, with the Gurrane Mountains on the left, some of which for more than two miles through the pass are nearly clothed to the summit with a natural wood of Oak and Holly, interspersed with tremendous rocks, over which numerous torrents turn and twist their foamy path. My short botanical research here was rewarded by *Saxifraga umbrosa,* London Pride; *Pinguicula lusitanica,* or Pale Butterwort; *Pinguicula vulgaris, Asplenium Filix-fœmina, Cistopteris fragilis,* and very fine specimens of *Blechnum boreale* and *Osmunda regalis,* a fern which fringes the bank of many a stream in Connemara. From Kylemore it is easy to reach the upper portion of Killery Harbour, a deep winding inlet of the ocean which separates the mountain-range of Gurrane from that of Mulrea. Lovely is the view from the head of the Killeries: the fine harbour, the isles beyond just visible, the lofty height of the mountains, with their deep gorges, and having their base washed by this fiord of the Atlantic, venturing to lock itself so far inland as to wear off from the appearance of a lake to that of a river. Near this locality I saw a small lake literally covered with the splendid flowers of *Nymphæa alba,* or white Water-lily; I also had remarked it in great profusion between Recess Hotel and Ballinahinch; near the latter place, in boggy ground, I got *Drosera anglica,* or Great Sundew, and *Menziesia polifolia,* the beautiful Irish Heath, in abundance. I was much disappointed that time did not permit me when at Roundstone to gather *Erica mediterranea,* which is found for the space of half a mile at the foot of Urrisbeg Mountain, near the town, and was discovered by Mr. Mackay.

The neighbourhood of Galway is rich in plants: on the 10th of last July two young ladies and myself found in a lane leading to a bluff, about two miles from the town on the Spiddal road, *Agrimonia Eupatoria, Convolvulus arvensis, Galium verum, Hypericum Androsæmum* and *perforatum, Lathyrus pratensis,* the white variety of *Centaurea Scabiosa.* On a sloping side of the bluff we gathered *Orchis bifolia,* of which we saw but one plant, but several of *Ophrys apifera,* the beautiful Bee Orchis, and a large plot of an aromatic Orchis with a long dense pyramidal spike of pale flesh-coloured flowers that perfumed the air with their sweetness; *Thymus Serpyllum* abounded on the bank, which is almost covered in early spring with the blue flowers of the rare *Gentiana verna.* On a smaller bluff we found several plants of *Dryas octopetala,* still displaying their lovely white blossoms, late in the year as it was. On the same day we gathered, in a boggy heath-field nearer to the town, *Drosera rotundifolia,* the pretty *Anagallis tenella,* and, in a tuft of furze, a rather uncommon little fern, *Botrychium Lunaria,* first discovered in that locality by Lady Sarah Le Poer Trench, with its two varieties. We saw very fine *Narthecium ossifragum* and *Menziesia polifolia,* near the more common but beautiful *Erica Tetralix.* We noticed stunted plants of *Osmunda regalis* and *Hypericum Elodes,* or Marsh St. John's-wort. We have lately found *Gentiana Amarella* abundantly near the town, within a pleasant distance from Dublin, by means of the Great Midland Railway.

Lastrea Filix-mas. *By* Geo. B. Wollaston.

Sir,—Feeling that it might be of some little interest to the readers of the 'Phytologist' to know (if they are not already aware of the fact) that the spores of Ferns, under a high power of the microscope, are almost an unerring diagnostic of a species, I venture with the greatest diffidence, for the first time, single-handed, into the battle-field of Pteridology.

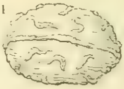
The subject that I now more particularly wish to draw your attention to is, the proofs that exist of the SPECIFIC difference of three, at least, of the *Filix-mas* group of the genus *Lastrea.*

Besides all the diagnostics mentioned most considerately in a foot-note under the head of the "Male Fern," in Messrs. Moore and Lindley's beautiful work on the British Ferns, printed from nature by Mr. Henry Bradbury, and also at page 191 of Mr. Edward Newman's excellent work on the same subject, there are others which I will endeavour to explain. But before doing so it is incumbent on me to state that most, if not all, botanists, and even Pteridologists, consider the three forms here treated of as varieties only of *Lastrea Filix-mas,* and not as distinct species; on the contrary, I have myself for many years felt persuaded that they were entitled to the higher rank, and have even presumptuously thought botanists very short-sighted not to be able to distinguish them at a glance, and it still remains a puzzle to me that they cannot. Of course I am about to speak only of the most typical normal forms, and not those varieties that run so close together in almost all genera, that defy human beings to separate into distinct links the unbroken chain of recent and primeval vegetable nature.

COMPARATIVE DIAGNOSTICS OF

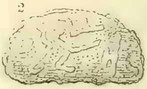
Lastrea Filix-mas.—*Spores* (fig. 1) olive-brown, keeled, verrucose; verrucæ comma- or serpent-shaped, disconnected. *Indusium* soft, evanescent. *Frond* undulate, decaying in winter, papery.

1



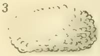
Dryopteris Filix-mas, var. *Borreri* (N.)*.—*L. Filix-mas,* var. *paleacea* (M.).—*L. pseudo-mas* (species) (W.).—*Spores* (fig. 2) olive-brown, obsoletely keeled, verrucose; verrucæ zigzag, spotted between, sub-connected. *Indusium* rigid, persistent. *Frond* flat, sub-evergreen, not decaying in winter, rigid; dark spot at the axils of the pinnæ *always* present (Mr. Newman says "frequently").

2



Lastrea Filix-mas, var. *pumila* (M.).—*Dryopteris Filix-mas,* var. *abbreviata* (N.).—*L. abbreviata* (species) (W.).—*Spores* (fig. 3) olive-green, not keeled, minutely and regularly verrucose. *Indusium* sub-rigid, "glandular." *Frond* crisped, sub-evergreen, rigid.

3



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* (N.) Newman. (M.) Moore. (W.) Wollaston.

There are other excellent diagnostics in the works before quoted, to which it is unnecessary to allude.

As all botanists should be scrupulously truthful, I ought to mention that Mr. Fred. Currey, the gentleman with whom I conducted the foregoing experiments, and whose microscope I used, was of a different opinion to myself with regard to the spores of *Lastrea Filix-mas* and *Borreri*,—he thought them "identical."

Chiselhurst, Oct. 16, 1855.

Plants found in the Neighbourhood of Settle, Yorkshire, *omitting some of the very common ones. By* John Windsor, F.L.S., F.R.C.S., etc.

(*Continued from page* 150.)

Knautia arvensis. On the banks of the River Ribble. Mill Island, etc.

Sherardia arvensis. On the roadside above Upper Settle. On the south-west corner of Lord's Wood, near Kelkowe.

Asperula odorata. In Kelkowe, Borrins, and other woods about Settle; not unfrequent.

Galium saxatile. Common on the hills about Settle.

Galium uliginosum. On the furthest bog between Giggleswick Scar and the Tarn.

Galium pusillum. On many of the mountainous pastures about Settle, as on Giggleswick Scars above Kelkowe, and also above Gordale.

Galium Mollugo. Hedges in several places near Settle.

Galium boreale. On the edge of Malham Tarn, in two or three places; near Arncliffe, and at the top of Kilnsay Crag.

Plantago maritima. On the roadside to Grassington, near Kilnsay, as previously noticed there by Curtis (Mr. Wm. Sutcliffe).—This situation is thirty or forty miles from the sea-coast.

Sanguisorba officinalis. Common about Settle, as in Leeming Lands, meadows near Lodge, Wharf, etc.

Potamogeton natans. Giggleswick Tarn, etc.

Potamogeton perfoliatus. In Malham Tarn. In the River Ribble, nearly opposite Long Preston.

Potamogeton densus. In Giggleswick Tarn, and in the rivulet flowing from it.

Potamogeton lucens. In a ditch near the Ribble, between Birkbeck's Weir and the foot-road leading to Rathmell.

Potamogeton crispus. Giggleswick Tarn, and in the village of Giggleswick, near Beggar-wife's Bridge.

Potamogeton pusillus. In several ditches between Settle and Rathmell, and near Raingill in Bolland.

Lithospermum officinale. Cavehole Wood, in two or three places near the Cave.

Lithospermum arvense. Roadside by the Settle Mills, near the south end of Mill Island.

Anchusa sempervirens. In several places near Settle and Giggleswick. Also at Laukland, Austwick, and Wharf.

Symphytum tuberosum. Near the Settle Bridge (Mr. J. Howson and Mr. J. Tatham).

Primula farinosa. Not uncommon about Settle and Malham, Gordale, Penyghent, etc.

Menyanthes trifoliata. In many places near Settle, especially in Giggleswick Tarn.

Anagallis tenella. In some places near Giggleswick Tarn.

Polemonium cæruleum. Malham Cove, Gordale. Near Kirkby Malhamdale, and on the north side of Penyghent.

Campanula rotundifolia. Not uncommon under stone walls, etc., near Settle.

Jasione montana. Roadside between Settle and Wigglesworth.

Lobelia Dortmanna (?). The leaves of this plant, if I am not mistaken, I have seen at the bottom of the clear water of Giggleswick Tarn, just like those of the plant abundantly in flower in Windermere Lake.

Viola hirta. Not unfrequent near Settle; as in Kelkowe, Major Spring's, Ribble-side, Malham Cove, etc.

Viola palustris. About Giggleswick Tarn. Cocket Moss, near Whelpstones; plentifully. Rye-loaf Hill. Huntworth Field, etc.

Viola lutea. Many mountainous pastures about Settle, as on Fourscore Acre, etc.

Hyoscyamus niger. In three or four places about Settle.

Erythræa Centaurium. Kelkowe. Field by the foot-road from Giggleswick to Stackhouse.

Rhamnus cathartica. Kelkowe. Lord's Wood.

Euonymus europæus. Roadside over the High-ridge near Giggleswick.

Ribes rubrum. Mill Island. By Birkbeck's Weir. Wood near Langcliffe Mill.

Ribes nigrum. By the edge of Birkbeck's Weir.

Ribes petræum. (*R. rubrum,* var. *β, petræum,* of Babington). Crevices of rocks betwixt Gordale and Malham Tarn. Also above Malham Tarn, and on the banks of the rivulet above Gordale.

Ribes alpinum. Found between Gordale and Malham Tarn with *R. petræum.*

Ribes Grossularia. Ditch-side in Settle Ings with *R. nigrum.* Highhill, above middle of Castleberg.

Ribes Grossularia, var. *β, Uva-crispa* (Sm.). Clefts of rocks between Chapel-in-the-Dale and Meer-gill, by the foot of Ingleborough.

Hedera Helix. Kelkowe, Giggleswick Scar, etc. Common.

Chenopodium. The only species I have seen about Settle are *C. album,* very common; and *C. Bonus-Henricus,* in a few places.

Gentiana Amarella. In high limestone pastures, very common some years, as I observed it in 1806 in Kelkowe, near Giggleswick Limekilns, and near Giggleswick Tarn. Whardale Knotts, between Stockdale-edge and Malham, etc.

Gentiana campestris. About Giggleswick Tarn. High Ridge, etc.

Hydrocotyle vulgaris. Near Giggleswick Tarn. Laukland Moss, plentifully. Field near Austwick.

Sanicula europæa. Kelkowe. Major Spring's. High Ridge Wood, etc.

Torilis Anthriscus. Common near Settle.

Daucus Carota. Lower part of Kelkowe. Wood near Ingleton.

Bunium flexuosum. Major Spring's. Kelkowe, etc.

Conium maculatum. In two or three places near Settle, as between Lower and Upper Settle. At the end of Borned Lane.

Silaus pratensis. In several places near Austwick. Marshy places in a pasture called Ingleby's Brows. By the foot-road to Clapham, near there. Near the foot-road between Austwick and Laukland. (Mr. T. W. Simmonds found it, in 1799, in a field below Major Spring's, but in 1800 he could not find a single plant there.) (Near Long Preston, *Mr. Nuttall.*)

Angelica sylvestris. Several places about Settle.

Sium angustifolium. Ditches in Settle Ings, etc.

Helosciadium nodiflorum. In the same places as the last, and several other localities about Settle.

Myrrhis odorata. In several localities near Settle, as noticed by Curtis formerly.

Pimpinella Saxifraga. Not uncommon near Settle.

Pimpinella magna. On the banks of the Ribble, below Settle Bridge.

Viburnum Opulus. In some woods and hedges near Settle.

Sambucus Ebulus. By a wall-side near Close House.

Sambucus nigra. Cavehole Wood, etc.

Sambucus nigra, var. *β, laciniata*, Kelkowe, east of the Cove.

Parnassia palustris. Not uncommon about Settle.

Armeria maritima. In an elevated moist pasture a little above Stockdale, on the road to Malham, plentifully. This locality is at least thirty miles from the nearest sea-coast.

Linum catharticum. Kelkowe. Giggleswick Scar. Highhill, etc.

Drosera rotundifolia. On most of the mosses and moors near Settle.

Galanthus nivalis. In a field at the further end of Upper Settle, perhaps wild.

Allium Scorodoprasum, of Bab. (*arenarium*, of Sm.). In Mill Island, about the middle part. (June, 1811, in tolerable plenty.) In a field on the right-hand side of the foot-road, about half-way between Settle and Langcliffe.

Allium oleraceum. Mill Island. (I have also seen specimens of this plant growing on a wall by the roadside near Kirkby Lonsdale.)

Allium vineale. In the stony parts of a field above Major Spring's.

Allium carinatum. Near Attermire Cove. Awes Scar. Rocks near Malham Tarn. Mill Island, 1811, very plentifully, with *A. arenarium* and *A. oleraceum.* (Noticed about Settle in Ray's time.)

Allium ursinum. Very common about Settle.

Gagea lutea has been, I believe, found near Malham Cove, but I was not successful in meeting with it. I have received specimens from near Ripon, in Yorkshire.

Narthecium ossifragum. Boggy places near Giggleswick Tarn. Near Malham Tarn. Rathmell Moor, etc.

Convallaria majalis. Kelkowe. Lord's wood. Cavehole wood. Stainforth woods, very plentifully.

Convallaria Polygonatum. Kelkowe. Cavehole wood. Near Birkbeck's Nursery. Rocks about a quarter of a mile above Major Spring's. Found about here by T. Williselt, in Ray's time.

Luzula sylvatica. North-east part of Peart's Crags. Near Ryeloaf Hill. In Laukland Hall woods. Near Giggleswick Tarn.

Berberis vulgaris. At Rathmell.

Peplis Portula. Rathmell. On the roadside near Greenhippings. Betwixt Catteral Hall and Giggleswick Tarn.

Triglochin palustre. Boggy places about Settle. Common.

Colchicum autumnale. Pasture near Catteral Hall. Meadow on the right-hand side of the road between Giggleswick and Swobeck.

Alisma Plantago. On the margin of Giggleswick and Malham Tarns, etc.

Alisma ranunculoides. In dry seasons met with abundantly on the margin of Giggleswick Tarn.

Epilobium angustifolium. On the north part of Richardson's Scar, near Attermire Cove. Rocks in a deep glen on the right-hand side betwixt Grisedales and Malham Tarn. Foalfoot, Ingleborough, and near Meer-gill, at the foot of Ingleborough, etc.

Epilobium hirsutum.
Epilobium parviflorum.
Epilobium montanum.
Epilobium tetragonum. } Not uncommon about Settle.

Epilobium palustre. Boggy places on the south-east end of Peart's Crags. In Langcliffe, plentifully. In a ditch between Giggleswick and Close House.

Epilobium alpinum, or possibly *alsinifolium.* I have a memorandum of having found this on the highest ridge, nearly as far as is accessible, on the right-hand descending Foal-foot, Ingleborough.

Vaccinium Myrtillus. Not uncommon about Settle, as on the Crags, Cravenbank, and about Giggleswick Tarn, etc.

Vaccinium Vitis-idæa. On Rye-loaf Hill. On Black Fourscore Acre. Ascent to Ingleborough. On the edge of Malham Tarn, plentifully. I have the following memorandum:—"Can this last habitat belong to *Vaccinium uliginosum?*"

Vaccinium Oxycoccus. Not uncommon on the mosses and moors near Settle.

Erica Tetralix. Not uncommon, with *Calluna vulgaris,* on the Mosses and Moors near Settle.

Erica cinerea. In a field on the north side of Giggleswick Tarn.

Polygonum amphibium. On the edge of Giggleswick Tarn.

Polygonum Persicaria.
Polygonum lapathifolium.
Polygonum Hydropiper.
Polygonum Bistorta.
Polygonum aviculare.
Polygonum Convolvulus.
Not uncommon about Settle.

Polygonum viviparum. In three or four places about Feizor, Wharf, Foredale, etc. It was noticed near here by Thomas Williselt, in the time of Ray, and pointed out to the latter by him.

(*To be continued.*)

Lastrea uliginosa *at* Wybunbury Bog, Cheshire; *with Remarks upon its supposed Hybrid Origin. By* John Lloyd.

Being in Cheshire in the month of December last, and as Wybunbury Bog in that county is recorded by Mr. Newman as one of the stations of *Lastrea uliginosa,* I determined upon a visit to it to procure a plant for the purpose of cultivating side by side with the Nottinghamshire plant. I found *Lastrea cristata* in tolerable plenty, mixed with abundance of *L. spinosa,* and some few plants which I could not identify with *L. uliginosa,* but considered them to be *L. spinosa,* with their fronds elongated, in consequence of the damp and shady situation in which they grew. I however brought a plant away with me, but quite under the impression that it would, by cultivation, prove to be *L. spinosa.*

When I returned to town, which was twelve days afterwards, I potted it, and also two lateral crowns which I separated from it. The adult plant, in consequence of the dry state it was in when planted, has not, up to the present time, produced a single frond, although it made two abortive attempts to do so during the past summer; but the largest of the offsets has grown admirably well,—the first frond which it produced was about twelve inches long, quite destitute of pinnæ upon its lower half, whilst those upon the upper half were broader and more crowded than in *L. uliginosa* or either of its allies. I showed it to several botanists and cultivators, and they were quite as much puzzled with it as I was myself. Each frond which it has subsequently produced has gradually advanced towards the normal state of *L. uliginosa*, so that now I feel certain that it is quite identical with some plants which I brought from Oxton Bog, in Nottinghamshire, some few years ago, and that the abnormal frond which it first produced was (to use the words of an eminent Pteridologist) a tendency to masquerading under cultivation, although that is a freak which it cannot be often accused of, for whilst in its wild state it is frequently very difficult to distinguish from *L. spinosa*; under cultivation it recedes further from that species.

Five years ago I visited Bawsey Heath, near Lynn, which is another recorded habitat for *L. uliginosa*, and I recollect to have seen plants with the same appearance which I observed at Wybunbury, and growing under the same circumstances with *L. cristata* and *L. spinosa*. But so satisfied was I that it was nothing more than an elongated state of the latter, that I brought no plant away with me, which omission I am now sorry for; had I done so, and tested it by cultivation, there is little doubt that it would have proved to be identical with those from the other two stations.

An opinion has been advanced that this plant may be a hybrid between its two nearest allies, and certainly a great deal may be said in favour of such an hypothesis: first, its more recent discovery being unknown to British botanists until some plants were brought by me from Oxton Bog, in Nottinghamshire, eight years since; secondly, the intermediate appearance, in habit, form, and vernation, between this plant and its two supposed parents; thirdly, its having been found in three separate and distant stations, growing in close proximity to them; and lastly, its comparative scarcity in those stations, from which latter fact it may be inferred that its spores are not so fruitful as are those of the other two. All these circumstances would tend towards a belief in its hybrid origin; but, on the other side of the question, it is more robust in its growth than either *L. spinosa* or *L. cristata;* and there is no hybrid that I know of which is stronger than either of its parents, indeed the contrary is the fact amongst phænogamous plants. I must say that I cannot understand how a Fern could hybridize. Now the fructification is covered with an indusium, which certainly must be quite sufficient to prevent any communication with those parts on a separate frond upon the same plant, much more with one belonging to another species, until after the bursting of the spore-cases and the dispersion of the spores; and to affirm that impregnation may take place between the spores subsequently, is, I think, a theory too vague and speculative to be seriously entertained.

On Galium commutatum *of Jordan, a Species new to Britain.*

By Jno. G. Baker.

This addition to our flora I first specially noticed upon an excursion into Teesdale in the summer of 1853 in company with my friends W. Foggett, J. W. Watson, and W. Mudd. At the east end of Cronkley Fell, the small stream, on the banks of which grow *Polygala uliginosa* and the stemless variety of *Primula farinosa,* falls down a precipitous scar of limestone, bleached through its proximity to the plutonic "whin sill," and forms the picturesque cataract known as the White Force. Here the botanical tourist who possesses a clear head and a steady foot may perhaps succeed in procuring specimens for his herbarium of *Hieracium cerinthoides* and *Pyrola secunda* (the latter known only in a single other locality in Yorkshire); and if he does not care to earn them by running the risk of breaking his neck by falling down from the spray-covered rocks, may at least reap without danger a rich harvest of rare mosses: *Andreæa alpina* and *rupestris, Grimmia torta* and *spiralis, Bartramia Œderi, Bryum Zierii, Zygodon Mougeotii,* and gather *Asplenium viride, Peltigera aphthosa,* and other ferns and lichens in condition scarcely to be equalled. Amongst the rocks and upheaped piles of fallen *débris* below the scar, grows our *Galium* in abundance, at an elevation above the level of the sea of between 1200 and 1500 feet.

This species belongs to the division of the section *Eugalium* of Koch, characterized by decumbent stems in combination with whitish flowers and awnless corolla-lobes, of which the previously-known British representatives are *saxatile*, and the plant which our authors, following Smith, are agreed to call *pusillum*, but which is better known upon the Continent by the name of *sylvestre;* it is to the last of these that it is most closely allied, and with which it is most liable to be confounded. From that species it may be known by its more numerous and smaller flowers, more spreading panicle, patent branches, thicker and narrower leaves (usually numbering about seven in a whorl), which are inconspicuously nerved on the under side, shining and glabrous stems, and various other distinctions of lesser importance. Like *pusillum*, it pretty much preserves its clear green colour in drying, whilst *saxatile*, as is well known, almost invariably changes to black; in its loose, straggling, procumbent habit of growth, it differs conspicuously from both the other species, so that I have no hesitation in regarding it as essentially distinct.

On the Continent it has been found by its nomenclator in the neighbourhood of Lyons, by Billot at Haguenau, by Grenier at Besançon, and by Lecoq and Lamotte amongst the mountains of Auvergne. It was originally described and named by Jordan, the first authority on European *Galia*, in the third fasciculus of his 'Observations sur plusieurs Plantes nouvelles, rares, ou critiques de la France,' published in 1846; by Boreau in the second edition of the 'Flore du Centre de la France' (1849). The plant of Auvergne is given under the name of *G. supinum*, Lam.; but Grenier and Godron consider (*vide* 'Flore de France,' vol. ii. p. 32) that it is impossible to decide with confidence that it is identical with what is intended by Lamarck, and they therefore adopt in preference the designation which I have employed.

This is the same plant to which allusion is made at page 180 of the Supplement to 'The Yorkshire Flora.' It was M. Jordan himself who first suggested to me the identity of the Teesdale plant with this species, an idea which the study of his published description amply confirms.

Thirsk, October, 1855.

On the Occurrence of Galium montanum *of Villars in Yorkshire.*

By John G. Baker.

During a recent visit to my valued friend John Tatham of Settle, we had the good fortune to meet with another *Galium* unreported as British, nearly allied to *G. commutatum,* published in this number of the 'Phytologist,' viz. *G. montanum* of Villars, first described in the second volume of the 'Histoire des Plantes de Dauphiné' (1787), the *G. læve* of Thuillier and other authors. It grows at an elevation of between two and three hundred yards above the level of the sea, along with abundance of *G. pusillum,* amongst the *débris* below the range of steep limestone cliffs known by the name of Giggleswick Scars, that mark the line of the immense dislocation called by geologists the "Craven Fault," for about a couple of miles westward of the town of Settle. The station is already known to botanists as a locality for several rare plants, of which *Epipactis ovalis* and *Hieracium hypochæridoides* are perhaps the most remarkable. As in *G. pusillum,* the stems of this species form masses, matted and densely interlaced, but the smaller proportion which the panicle bears to the leafy portion of the stem gives the tufts a different appearance to those of the former species; and besides, *montanum* is two or three weeks later in season than the other, and was still partly in flower at the time of my visit, when the corollas of *pusillum* had fallen, and the seeds were mostly drawing near to perfection. Such being the case, and as it possesses recognizable distinctions, I do not think that, although the plants of this genus afford scope for considerable diversity of opinion as regards their limitations, we shall incur much risk of error in receiving it as a distinct species into our British lists.

I have endeavoured below to select the best diagnostic characters of the four supposed species of the section to which it belongs. Be it observed that Grenier and Godron, mostly following Jordan's 'Plantes nouvelles, rares, ou critiques,' enumerate for France no less than twenty-one.

G. saxatile. Stems procumbent or slightly ascending, smooth, glabrous. Leaves finely nerved, clothed on the border with a row of prickles pointing forward; lower obovate, upper oblong-lanceolate, suddenly mucronate; about six in a whorl. Panicle much branched; fructiferous pedicels erecto-patent; lobes of the corolla acute. Fruit prominently tuberculated. Plant turning blackish in drying.

G. montanum. Stems slightly ascending, smooth, glabrous. Leaves finely but prominently nerved on the back, ciliated or glabrous; lower lanceolate, upper linear or linear-lanceolate, mucronate, attenuated below, six or seven in a whorl. Panicle small, sparingly branched; fructiferous pedicels erecto-patent; lobes of the corolla apiculate. Fruit faintly tuberculated. Plant preserving its colour in drying.

G. pusillum. Stems more or less ascending, pubescent below. Leaves finely but prominently nerved on the back, with or without prickles; lower broader, pubescent, upper linear-lanceolate, sharply mucronate, usually glabrous, seven to nine in a whorl. Panicle much branched; fructiferous pedicels erecto-patent; lobes of the corolla acute. Fruit faintly tuberculated. Plant preserving its colour in drying.

G. commutatum. Stems nearly procumbent, smooth, glabrous. Leaves inconspicuously nerved on the back, with or without prickles, usually entirely glabrous, thick, linear, mucronate, six to eight in a whorl. Panicle with numerous branches spreading at right angles; fructiferous pedicels patent; lobes of the corolla small, mucronate. Fruit faintly tuberculated. Plant preserving its colour in drying.

The Crimea and its Vegetation.

We hope the following extract from a recent publication will gratify our readers.

"The lower part of the Crimea towards the south is popularly known as Russian Italy. The general features of this range are bold crags and ravines, covered with never-ending forests of Pine and Oak, and which form a striking contrast to the splendid Walnut, Chestnut, Mulberry, and Cypress trees, which vie with one another in beauty, lower down, towards the sea. As this chain of mountains forms a screen against the biting winds from the north, the climate is much milder here than on the other side; and although an occasional winter's frost destroys many of the plants which have remained unharmed for years, yet the Rhododendron, the Magnolia, and many delicate plants, may be seen of large size in the open air: it is in these nooks and corners by the sea-side, and under the stupendous crags, that the traveller finds the luxurious villas of the Russian nobles. The soil here is particularly suited to the cultivation of the Vine, and from its warm, sunny exposures, the wine is equal in strength and quality to that of the South of France. The Fig-tree, the Pomegranate with its showy scarlet blossoms, and the lively little Caper-bush, are everywhere to be seen. Olive groves also are here and there to be met with; but they are not widely cultivated, as the ground is more profitably laid out in vineyards.

"As we go northward, the steppe assumes its grand characteristic, presenting a huge circle of flatness, where nothing is seen but the over-arching sky and the conical-shaped tumuli, which rise every here and there, like monster mole-hills, on the surface of the plain. These steppes are very beautiful in spring, when the wide-spread green of the young grass becomes converted into a sea of wild-flowers, yielding to the wind, which sways backwards and forwards their masses of varied colour, like waves on the shore. Fancy whole miles of purple Larkspur gleaming in the sunshine, intersected with patches of bright scarlet Poppy; and the pink-coloured wild Peach shrub, with gaudy Tulips and Crocuses, contributing also their fine contrasting hues. But, alas! these beauties soon vanish at the approach of summer, and are succeeded by a tall, feathery grass, such as I have often seen grown in gardens in England. Fortunately this grass is confined to certain districts, for sheep cannot pasture where it grows, in consequence of the subtle art which its seed possesses of working its way into their skin. In summer the Crimea becomes literally baked with heat, and by the end of June the grass on the steppe is yellow and parched. It is at this season that the mirage is most frequent, and it really helps to beguile the way by presenting a temporary excitement to the traveller. Driving along the steppe, suddenly something seems to arise like a city, glittering through a mist in the distance; gradually an appearance of towers and trees comes out more clearly; as you advance, new spires arise, and trees, bridges, and rivers appear—a picturesque combination. By-and-by they sink into confusion; and when you arrive at where stood the city of enchantment, all has vanished away, and you find but the waving of the parched grass as before. From the tear and wear of the clayey soil during the long droughts, which often last for months during summer, there is a great accumulation of dust. This gives rise to another phenomenon, of frequent occurrence on the steppe, reminding one of water-spouts on the sea, but filled with dust instead of water. Suppose the great flat steppe stretched out beneath the blue sky—nothing visible—no breath of air apparently stirring—the whole plain an embodiment of sultriness, silence, and calmness—when gradually rise in the distance six or eight columns of dust, like inverted cones, two or three hundred feet high, gliding and gliding along the plain in solemn company: they approach, they pass, and vanish again in the distance, like huge genii on some preternatural errand."

Reviews.

The Dyeing Properties of Lichens. By W. Lauder Lindsay, M.D., Perth.

This age, as the author of the tract above named well observes, is pre-eminently distinguished as an age of discovery and enterprise in every department of Nature's domains. Great efforts are made, and making, to discover some substitute for flax, or rather for discovering some pulpy matter which may be used instead of linen rags in the manufacture of paper. We are now writing on paper manufactured from straw, and for common purposes we find it a very excellent article. It presents a uniformly hard and smooth surface, imbibes the ink readily, and may be written on both sides; it is also a very economical paper. Several British plants produce a tenacious fibrous bark, which we think might be available in the present scarcity of rags. But we have a different subject before us; *revenons à nos moutons,* or "let us stick to our text." We are glad to meet Dr. Lindsay either as a botanist or as a chemist, although in the last-named character he is somewhat *beyond our bounds;* this being the case, both in justice to him and in deference to our readers, we think it best to leave the Doctor to speak for himself.

"In conclusion, or by way of *résumé,* I shall briefly sum up the chief grounds on which I beg to direct public and scientific attention to the claims or importance of this limited but interesting branch of economic botany:—

I. Experiment on the small scale shows that many native and foreign Lichens, which are at present unknown in commerce, and are unapplied to our arts and manufactures, furnish the same (or similar) dyes, as those species which are usually employed in the manufacture of orchil, cudbear, and litmus.

II. Many of these species grow abundantly, or reach their acme of perfection, in cold climates; several are plentiful on the mountains of Scotland, Ireland, and Wales, where they could be collected cheaply and easily; all can be gathered and transported with little or no skill or labour.

III. Whereas in the manufacture of orchil *Roccella tinctoria*, and in that of cudbear and litmus *Lecanora tartarea*, were the species formerly chiefly used in this or other countries, now British manufacturers have introduced many other dye-lichens, either as substitutes or adulterations.

IV. Some of these were formerly collected to a considerable extent in different districts of this country for the Glasgow and London markets, *e. g. Lecanora tartarea*, the so-called 'Cudbear' Lichen.

V. Many species are, or have been, used to furnish dyes by the natives or peasantry in almost all parts of the world. In evidence whereof I need only refer to the 'crotals' of Scotland, the 'stane-raws' or 'stone-rags' of England, Ireland, and Wales, the 'korkalett' and 'scrottyie' of Shetland, the 'bœttelet,' the 'sten-mossa,' 'alaforel-laf,' 'bjork-laf,' etc., of Sweden and Norway, the 'Perelle d'Auvergne' of France, the 'chulcheleera' of India, the 'caranja' and 'Jaffna moss' of Ceylon, and the *Usnea barbata* in South America; and, for general information thereanent, to Table I. There is a probability that dye-lichens continue to be used in some parts of our Highlands and Islands, where they were formerly employed to a great extent, from the fact that in a collection of the vegetable products of Scotland, at the Exhibition of 1851, yarns dyed by the following 'crotals' were exhibited:—

	Isidium corallinum	[white crottle or crotal].
	Lecanora parella	[light ,,].
	Sticta pulmonacea	[light crottle].
	Parmelia physodes	[dark ,,].
	,, omphalodes	[black ,,].
Besides	,, parietina, etc.	

VI. The dye-lichens thus used by manufacturers or by the peasantry are the very species which are proved (as a general rule), by experiments on the small scale, to be richest in colouring matters: hence, by analogy, the probability that other species, which experiment has also determined to be more or less rich in colouring matters, may be found a useful addition to the present list of dye-lichens used in British manufacture.

VII. In support of the opinion that many new dye-lichens might thus be rendered subservient to our arts and manufactures, we have the testimony of orchil-makers and dyers themselves, as given in the Great Exhibition of 1851. (*Vide* Appendix to Table II.)

VIII. Chemical analysis has shown that colorific principles, similar to, or identical with those, the product of whose metamorphosis is the basis of the beautiful colours of orchil, cudbear, and litmus, pervade species belonging to several different genera, which are both widely distributed over the world, and more or less plentiful in this country.

IX. Lichens are the most extensively distributed members of the vegetable kingdom; several species are cosmopolitan. The geographical diffusion of the dye-lichens, even the most valued varieties, is very extensive. For instance, *Roccella fuciformis* and *tinctoria* occur equally in Europe, on the shores of Corsica and Sardinia, and on various parts of the Mediterranean coast; in Africa, on the Mogadore coast on the north, on various members of the Azores group of islands on the west, Angola and the Cape on the south, and in Mozambique, Madagascar, and the Mauritius on the east; in Asia, on the coasts of Ceylon, India, and Arabia; in America, on the coasts of Chili, Peru, and Brazil, as well as in Australia, New Zealand, the Falkland Islands, and other comparatively unexplored continents and islands of the southern hemisphere. Botanical travellers have found that there is comparatively little difference between European species of Lichens and those of North and South America, India, and New Holland. Brown remarked the strong similarity in regard to New Holland species; Humboldt in regard to South American; and of Royle's collection of Himalayan Lichens, Don pronounced almost every one identical with European species. Hence the strong probability, in addition to the other facts above mentioned, that our colonies and other foreign countries to which we have access may become extensive and valuable fields for the produce and export of dye-lichens."

The Natural History of Pliny. Translated by the late John Bostock, M.D., F.R.S., and H. T. Riley, Esq., B.A. Vol. III. Henry G. Bohn, York-street, Covent-garden. 1855. Price 5*s*.

The original translator of 'Pliny's Natural History,' the veteran Doctor Philemon Holland, has been dead now upwards of two centuries, and his translation is obsolete, and its author in oblivion. We have seen part of a translation of Pliny undertaken by the Wernerian Society, but we do not know if it was completed. We hope the present series will continue, for we should very much like to see a modern and complete translation of this celebrated store of natural marvels. The portion before us comprehends six books of the natural history of trees and herbs, and very pleasant reading is found in them. The translator has enriched his pages with copious notes, explanatory of the text, and done his best, and not unsuccessfully, to identify the plants of his author with those described by modern systematists. To this we shall have occasion to refer in our subsequent notes on the nomenclature of the British plants. Book XII. contains the natural history of trees, and of many other plants and vegetable productions besides; exotic trees form the subject of Book XIII.; fruit-trees occupy Books XIV. and XV.; the XVIth is devoted to the forest-trees, and the XVIIth comprehends the history of the cultivated trees. Pliny's classification is not systematic, but his descriptions are often curious, and for the period when they were composed, are wondrously accurate. Among the forest-trees he assigns the first place to the Oak, as the Vine obtains the first rank among fruit-bearing trees. To the Oak succeed the Pine, the Larch, the Yew, the Ash, the Linden or Lime, the Maple, the Box, the Juniper, Rhododendron, and so on. From this it may be inferred that Pliny classified trees by their size, otherwise it is probable that he would have combined in one group the Pine, the Juniper, and the Cypress, and in another the Poplar and the Willow. Linnæan and natural systems of classification did not then exist; yet Pliny's 'Natural History' continued to be a readable book, from the time of its composition (the end of the first century?), until the present day, when it bids fair to enter again upon a new existence, and to be read not only by Linnæan and other botanists, but by many who find the modern works on botany far too meagre and uninteresting for their perusal.

It would be impertinent in us to commend a book which has received the approbation of sixty generations, which was the grand treasury out of which our elder botanists derived most of their knowledge of plants, and laboured, often fruitlessly, to identify the productions of their several respective countries with the objects described by Pliny. The translation, which is solely the work of Mr. Riley, is, we believe, faithful; we know that it is explicit and concise; but both the translator and his former translations are too well known and appreciated to need any commendation of ours to promote their circulation or acceptance among the reading public.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Kentish Plants.—There are few districts that can afford more features of novel interest to a botanist from the inland counties, than such a salt marsh as may be traversed between Whitstaple and Seasalter, in Kent. Here there are some acres of black, boggy mud, containing much iron in its composition, and thickly covered with *Salicornia herbacea* and its procumbent variety. *Aster Tripolium* is here abundant, its flowers being more generally than not destitute of rays; also *Arenaria marina* (*Lepigonum marinum*, Wahl.), *Statice Limonium*, and less abundantly *S. rariflora*, Drej., easily recognized at a distance from its congener by its more lax and branched inflorescence; a closer inspection reveals differences in the shape of the leaves, although it seems probable that it may be no more than a variety of *S. Limonium.* Those who attach so much importance to the physical state of the soil, as determining the growth of certain plants, will perhaps explain how it is that the *Statice Limonium* grows so abundantly in two soils of such opposite degrees of consistency as the chalk in the cliffs about Dover and elsewhere, and the soft mud in which it thrives at Whitstaple. The visitor to the latter place must have a supreme disregard for dirty boots, and should conduct his research when the tide is out; his zeal will then be rewarded by culling the above-mentioned plants, as well as *Atriplex portulacoides*, *Chenopodium maritimum*, *Triglochin maritimum*, *Rottbœllia incurvata*, *Spartina stricta*, *Zostera marina;* and many other plants (novel to an inland botanist) would doubtless repay a more diligent search than the writer was able to make. Along the beach beyond this salt-marsh are to be found *Glaucium luteum*, *Silene maritima*, *Lathyrus Nissolia*, *Fœniculum officinale*, *Peucedanum officinale*, *Artemisia maritima*, *Eryngium maritimum*, *Glaux maritima*, *Plantago maritima*, *P. Coronopus*, *Hyoscyamus niger*, *Salsola Kali*, *Beta maritima*, *Hordeum maritimum*, etc. etc., while the neighbouring ditches furnish *Scirpus maritimus*, *Apium graveolens*, *Hydrocharis Morsus-ranæ*, and in the marshes *Althæa officinalis* and other marsh plants are to be met with.

MAXWELL T. MASTERS.

Sir,—On glancing over Mr. Gissing's Botanical Notes from South Devon, pp. 25–29 of No. II. of the 'Phytologist,' I put down (from memory) a few of the Babbicombe plants that seem to have escaped his observation, probably from the backwardness of the season in June last and the shortness of his stay. The *Ophrys* is rapidly diminishing, from the number of roots taken up by collectors, but *Neottia* is abundant.

BABBICOMBE: *Ophrys apifera*, *Spiranthes autumnalis*, *Diotis maritima*, *Viburnum Opulus et Lantana*, *Linaria spuria*, *Scilla autumnalis*, *Calamintha*

Acinos, *Scrophularia aquatica*, *Orobanche major*, *Euphorbia amygdaloides*, *Cichorium Intybus*, *Cornus sanguinea*.

MAIDENCOMBE: *Lathyrus sylvestris*. CHAS. S. PARKER.

Liverpool.

Sir,—As I presume that you will commence a "Record of Localities" in the 'Phytologist,' I send the following, which I have noticed in 1855: —*Agrimonia odorata:* in Glan Sannan, Caermarthenshire. *Herniaria glabra:* near Six-mile Bottom, Cambridgeshire. †*Alyssum calycinum:* near Six-mile Bottom, Cambridgeshire, but probably introduced with grass-seed. *Bunium Bulbocastanum:* behind the Temple at Wilbraham, Cambridgeshire. This extends its known range five miles towards the north-west. Yours obediently, CHARLES C. BABINGTON.

St. John's College, Cambridge.

Sir,—You may like perhaps to insert amongst your Botanical Notices that the grass *Phalaris paradoxa*, which I met with at Swanage, in Dorsetshire, in the year 1847, still maintains itself in the same spot in which I first observed it. I saw a considerable number of plants there this summer, and as they seeded freely, this Grass, which does not I believe occur in any other part of Great Britain, may be expected to flourish for some years to come. I had also the pleasure this year of seeing *Simethis bicolor* in full flower and pretty abundant, on the 6th of July, in the only English station in which it has been observed in Mr. Packe's plantations near Bournemouth: a lovely plant when the flowers are expanded in the sunshine, and well worthy of a special visit. I can send you a list of the rarer plants of the Heath district of Hants and Dorset, should you desire it. Very truly yours, JAMES HUSSEY.

Salisbury.

Some one asks in the July number of the 'Phytologist,' p. 72, "Is *Clematis Vitalba* a Dorsetshire plant?" It is common in Purbeck, especially about the stone-quarries near Swanage.

[Our kind correspondent, Mr. Hussey, will perhaps have the goodness to give us some particulars about the *Phalaris paradoxa*. We have collected for some years a *Phalaris*, which is probably identical with the Bournemouth plant; but we have no hope of its permanence in the station observed by us.]

Lycopodium Selago in Surrey.—Upon Hindhead Heath, about forty miles from London by the Portsmouth turnpike-road, and about three or four hundred yards beyond that singular depression of the earth called the Devil's Punch-bowl, stands a stone that marks the boundary of the parishes of Frensham and Thursley. Near this spot is an old road, parallel with the turnpike-road and only a few yards from it, on the 14th of June last, I discovered *Lycopodium Selago* growing there; it grows very sparingly, and is not easily discovered, owing to the similarity of its appearance to *Ulex nanus*, which grows there in great abundance; it may perhaps be found in more plenty upon the higher part of the Heath, which, in its highest part, is eleven hundred feet of altitude, whilst the spot where I found it was about nine hundred. Can this be the station in Ray's 'Synopsis,' 3rd edit. p. 106: "In ericetis inter Godalmin et Wakehurst comitatus Sussexiæ, D. Maningham"? JOHN LLOYD.

[We have collected *Lycopodium Selago* on the moors of Hindhead, but we do not know that this station has been published in the 'Phytologist.' We did not notice it on the highest part of the Heath, although it probably may grow there. It was rather scarce where we collected it.]

Agrimonia odorata, Mill.—Sir,—I have the pleasure of reporting two new localities for *Agrimonia odorata*, Miller. I gathered it near Niton, in the south of the Isle of Wight, on the 11th of last August. On the 29th of the same month, at a meeting of the Worcestershire Naturalists' Club, it was found in considerable abundance in Tiddesley Wood, Worcestershire, by a party of botanists, who were exploring the district, under the guidance of Mr. Lees, the Vice-President of the Club. The plant probably occurs in many parts of the kingdom. W. MATHEWS, *Jun.*

Pilgrim's Weed.—Sir,—Your correspondent "J. B." can scarcely be serious in his question respecting the "Pilgrim's *Weed*" of which John Bunyan talks; if he is, I beg to submit that he has mistaken the meaning of the passage, and attributed to the illustrious Puritan a botanical intent of which he is quite innocent. The "Pilgrim's Weed" is rather, I suspect, connected with the cockle-shell and sandal shoon, *i. e.* the distinguishing *garb* of the Pilgrim. We still use the phrase, "widow's weeds," to describe the hideous dress of bereaved women. As far as I can make out, "*weed*" is the Anglo-Saxon "*weod*," *vestis*. T. F. RAVENSHAW.

P.S.—In my "Notes from South Devon," in your sixth number, *Inula Helenium* should have been *I. Conyza;* and *Anagallis carnea*, "var.," has been printed for *A. carnea*, Bab.

P.S. No. 2.—A facetious friend has suggested that the "Pilgrim's *Weed*" might be "*Traveller's Joy*," or more probably *Tobacco*.
Ilfracombe.

Sir,—I think "J. B." (p. 143) has mistaken the sense of the passage he refers to, in the second part of the 'Pilgrim's Progress,' as the context shows that it is not a *weed*, but *a dress* that is alluded to, shoes and hosen being spoken of, rags and rents, etc. The old ballad of 'The Friar of Orders Grey' mentions "Pilgrim's weeds," and I find in Barclay's Dictionary that the Saxon word *wæda*, *weod*, means a garment, cloak, or habit, as well as a "herb growing spontaneously." M. M. ATWOOD.
Clifton Vale, near Bristol.

Misseltoe.—Inquiry is made (p. 119) about Misseltoe growing on the Oak. Though I can scarcely be said to have been an eye-witness of this fact, yet I well remember many years ago having seen the late Mr. Dickson, of Covent Garden, just after he had returned from a journey, the principal object of which, I believe, was to see with his own eyes the Misseltoe growing on the Oak. He brought back with him a small specimen, which he showed me, but I quite forget from what part of the country it came. Sir Joseph Banks was long sceptical on the subject, but said, "If *Dickson* said he had seen it, he would himself believe it." To the trees mentioned (p. 119) as subject to the growth of Misseltoe, may be added the Poplar and the Lime, on both of which it grows copiously, and occasionally, though rarely, on the Pear, etc. W. T. BREE.
Allesly Rectory.

Sir,—Two or three paragraphs have recently appeared in the 'Phytologist' respecting the growth of the Misseltoe on the Oak. The following extract from a letter of my friend, Edwin Lees, Esq., F.L.S., of Worcester, you will perceive settles the doubt *in favour* of its growth on that tree. He says:—"With regard to the Misseltoe on the Oak in Eastnor Park (near Ledbury), I saw plenty of it high up in the tree in the summer and autumn of 1853. October, 1853, was the last time I *saw* it, but I know nothing to the contrary of its being there *now*. I can tell you where another bush of Misseltoe exists on the Oak, which I saw myself in July, 1854, and I believe *discovered*, for I never heard of its being there before. It is on an Oak in a wood not far from Plymouth, by the side of the South Devon Railway. This was only a *single* bush among the topmost branches of a lofty though scraggy Oak-tree. I do not know the name of this Devonshire wood, but it is the *first* that occurs on the South Devon Railway *north* of Plymouth, between two and three miles from the latter place. The Oak in Eastnor Park has many bushes, indeed quite a load of Misseltoe, on its topmost branches." I think this will be sufficient to prove the existence of the Misseltoe on the Oak; and remain, truly yours, T. W. GISSING.

P.S.—I may add here, that it may be recorded in the 'Phytologist' that in July last I was so fortunate as to discover *Papaver hybridum* (abundant), and *Caucalis daucoides* (sparingly) at Tibberton, near Worcester. These are *both* new plants to Worcestershire.

Salisbury.

Misseltoe.—In the Kew Museum there are specimens of Misseltoe grown on Lime, Willow, Apple, and Hawthorn. We have seen it on *Populus alba.*

Communications have been received from

John Lloyd; Rev. W. T. Bree; W. W.; T. W. Gissing; A. I.; John Windsor, F.L.S.; H. B.; Geo. B. Wollaston; Rev. T. F. Ravenshaw; A. Z.; A. G. More; J. A., Chelsea, two communications; Rev. W. A. Leighton.

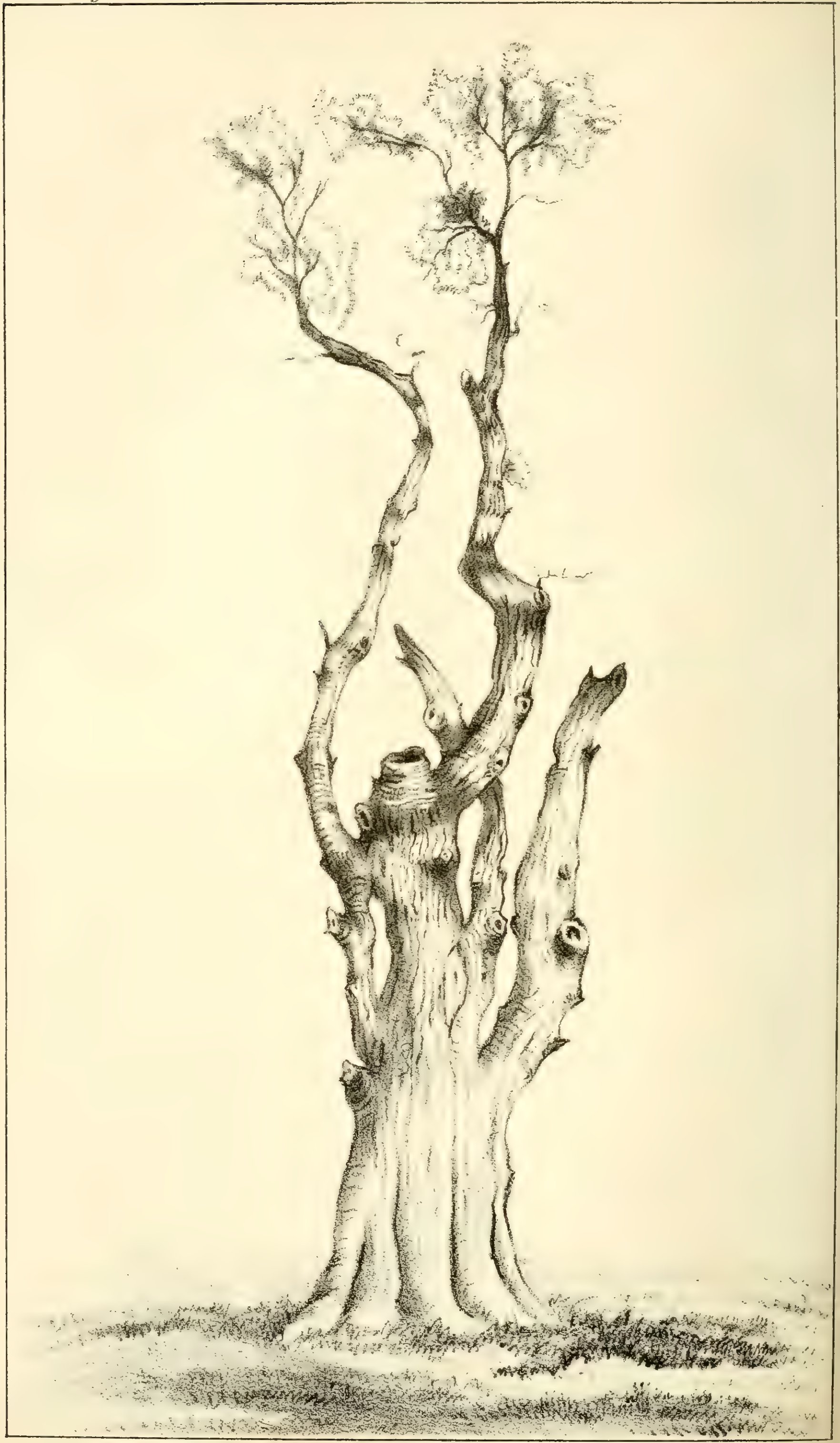
BOOKS RECEIVED FOR REVIEW.

Sowerby's Fern Allies, Part I.
Leighton's Monograph of the British Graphideæ.
The Home Companion for October.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

ERRATA.

Page 147, line 14, *for* Lankland *read* Laukland; line 25, *for* Jugs *read* Ings.
Page 148, last line, *for* Jugs *read* Ings; *for* Commock *read* Cammock.
Page 149, line 13, after Spring's Wood insert a full stop: these form two stations, viz. Major Spring's Wood. Near Ingleton Bridge.
Page 150, line 6, *for* Settle Jugs *read* Settle Ings; line 13, *for* Settle Jugs *read* Settle Ings.



Some Notices of the SORB TREE *of Wyre Forest, Worcestershire.* (See Engraving.)

The Sorb-tree, *Pyrus domestica,* of which we have the pleasure of presenting a characteristic drawing to our subscribers, is generally said to be the only one in England, and therefore has been an object of no ordinary interest to all British botanists. The drawing communicated to us was made on the spot by our obliging correspondent, who sent us a brief account of the vegetation of the forest where this British rarity still exists. The following extract from Gerarde's description of this tree, page 1470, renders it doubtful if he knew it as wild. "These trees," says he, (both *Pyrus domestica* and *P. torminalis,*) "are found in woods and groves in most places of England; there be many small trees in a little wood a mile beyond Islington, by London. In Kent it groweth in great abundance, especially about Southfleet and Gravesend." To this Johnson adds, "The latter of these I have seen growing wild in divers places, but not the former at any time as yet." Parkinson, in his 'Theatre of Plants,' pages 1420, 1421, is more explicit: "The first (*P. domestica*) is seen with us but in a few places, and these only planted for their rarity. The second (*P. torminalis*) is found in many places in England." The first extant notice of this tree, in a botanical work, is in Ray's 'Synopsis,' where it is said to have been found by Alderman Pitt, of Worcester, in a forest of that county.

Hudson enumerates and describes the Sorb as one of the spontaneous vegetable productions of Britain, and adds, "Habitat in montibus nemorosis. In the mountainous parts of Cornwall, Walter Moyle, Esq.; on the moorlands of Staffordshire, D. Plot. R. Syn. (Ray's Synopsis), ♃ iv. v. Pharmac. Sorbi *Fructus* (the fruit is employed in pharmacy)." It is also noticed by Withering, though it is very doubtful if he ever saw the tree. He refers to Gerarde and Parkinson; and after describing it, he gives the following stations:—"Mountainous forests. Mountainous parts of Cornwall, and the moorlands of Staffordshire." [In the middle of a thick wood in the forest of Wire, near Bewdley, Worcestershire, one mile from Mopson's Cross, between that and Dowles Brook, found by Mr. Pitt, alderman of Worcester.] Purton, in his 'Midland Flora,' observes: "In the middle of a thick wood in the forest of Wire, near Bewdley, in

Worcestershire, one mile from Mopson's Cross, between that and Dowles Brook. *With.*" The same author informs us that it was to be found in the moorlands of Staffordshire; but adds, "I have not yet received a confirmation of its still growing there. Mrs. Gardner informs me that this tree still grows in the forest of Wire; also, a friend of Mr. Pilkington's surgeon, Bewdley, who resides near the spot, gives me the same information." In Sowerby's 'English Botany,' the author of the descriptive part of that work states: "We have been favoured by Lord Viscount Valentia with fresh wild specimens of this rare British plant, gathered from a solitary tree in the middle of Wire Forest, near Bewdley; the same probably that was observed by Mr. Pitt, in Ray's time." *Smith, E. B. in loco.*

There is one remark to be made here, and it merits consideration. Gerarde, Johnson, and Parkinson do not mention this individual tree; probably they never heard of it. Robert Plot, in his 'Natural History of Staffordshire,' page 208, gives the following account:—"As for trees not noted to be of English growth by the learned Mr. Ray, the *Sorbus pyriformis* is not the only one I met with here, which grows wild in the moorlands at many places, and is sometimes transplanted into their gardens. It is described by L'Obelius, Matthiolus, and Bauhin, who unanimously place it in France, Italy, and Germany; but the first that ever found (at least noted) it to be a native of England, that ever I heard of, was the skilful botanist Mr. Edmund Pitt, alderman of Worcester, who met with it in a forest of that county, and sent this description of it to the Royal Society. It resembles (says he) the *Ornus*, or Quicken-tree, only the *Ornus* bears the flowers and fruit at the end, this on the sides, of the branch: next the sun the fruit hath a dark-red blush, and is about the bigness of a small jeneting pear; in September of so harsh an astringent taste that it almost strangles one, but being gathered and kept till October, it eats as well as a medlar." It might be hazardous even to hint that probably Plot never saw this tree either in Wyre Forest or on the moorlands of Staffordshire, whence it was "sometimes transplanted into the gardens." But if they did grow on the moors in many places, what became of them? The solitary tree in Wyre Forest is now the sole survivor. The accounts given by Hudson, Withering, and Purton, are all founded on Plot's account, and are all likely to mislead.

The general habitat, mountainous forests, would naturally signify that it is a native production of such places. The moorlands of Staffordshire is a locality somewhat more precise, but this, it appears, was not confirmed in Purton's time, and certainly has not been verified since. Not one of the authors quoted, from Hudson to the author of 'English Botany' inclusive, saw the tree, and hence were incapable of noting the circumstances under which it grew. With the exception (honourable it may be called) of our earlier botanists, Gerarde, Johnson, Parkinson, and perhaps Ray, all the localities or habitats for this curious object appear to have grown out of Ray's notice as above.

The *montibus nemorosis* of Hudson doubtless was derived from Ray, and the moorlands of Staffordshire may have originated in Wyre Forest, which is near Staffordshire, if not actually in that county. It is probable that the "mountainous parts of Cornwall" is a mistake; although Cornwall is more likely to produce the tree than the moorlands of Stafford are.

Fames crescit eundo. We hope our readers will remember the story of the three black crows, and make a right application of the moral which it points. It could hardly be credited by the readers of Hudson, Withering, Purton, Smith, etc., that there was but one individual tree of the sort in Britain, and in all probability that one not native. That there are many native trees in Wyre Forest, is a fact which no one who has been there can doubt, but that the Sorb is one of them is very doubtful. This is not the only tree of this species growing in England, but it is the only one which has been considered by botanists as native, although *it* in all probability has no more claim to that distinction than the other examples of this tree, known to have been raised in nurseries and planted in the stations where they now grow. It is hardly credible that *one single genuine native* could or would exist in a single spot, and remain solitary, having abundant means and room for extension. Apple-trees abound in the Worcestershire hedges, and increase by seedlings. Pear-trees are not altogether unknown in similar localities, only they are in request for grafting-stocks, and on this account are often grubbed up, while the former are suffered to remain. The Sorb of Wyre Forest has produced fruit for hundreds of years, and does still produce a little, but we have never heard of a seedling-plant being found either in proximity to or remote from the parent tree. Its planting was certainly at a remote period, probably several hundreds of years ago, possibly before the forest itself was *afforested.* At all events, its history cannot now be traced. On the faith of the native or spontaneous origin of this single tree, *Pyrus domestica* has maintained its place among British plants since the times of Ray, and it is likely to retain its hold on our flora for generations to come, long after the sole and original cause of its introduction has been resolved into its primary constituent elements.

In Loudon's 'Arboretum' there is a very detailed account, not only of our Sorb-tree, the Sorb of Wyre Forest, but of all the Sorbs known within the four seas. From this work the following extracts are taken :—

"*Pyrus domestica,* Smith.—*The Whitty Pear-tree.*—*The Sorb-tree.*—*Cormier,* or *Sorbier cultivé,* Fr.—*Speyerlings-baum,* or *Sperber-baum,* Ger.—*Sorbo,* Ital.—A native of Europe, chiefly of the middle region, and found also in some parts of Barbary, particularly in the neighbourhood of Algiers. The only plants of the species in its uncultivated state are in Wyre Forest and the Arboretum at Milford; in foliage and general appearance closely resembling the Mountain Ash, but attaining a much larger size, and bearing much larger fruit, of a greenish-brown colour when ripe. In France this tree attains the height of 50–60 feet, and it requires two centuries before it reaches its full size; and lives to so great an age, that some specimens of it are believed to be upwards of a thousand years old. The fruit is five times the size of that of the Mountain Ash, and of a dull greenish-brown colour. It is said to be thirty years before it comes into a bearing state when raised from seed; but when slips or scions from fruit-bearing trees are grafted on seedling plants, or on the Mountain Ash, they come into bearing in a few years, as in the case of other fruit-trees.

"The true Service-tree is not found in abundance in any part of the world. There are perhaps more trees of it in the middle of France and the Alps of Italy than in all other countries put together; but it is also found in the south of Germany, in some parts of the north of Africa, and in Western Asia. It was formerly said to be a native of different parts of Britain; but in Smith's 'English Flora' there is no positive habitat (locality) given, except that of a solitary tree in Wyre Forest, near Bewdley, in Worcestershire. This tree [the example in Wyre Forest] is forty-five feet high, and the diameter of its trunk, at one foot from the ground, is one foot nine inches, and that of the head is twenty-six feet.

"The wood is the hardest and the heaviest of all the indigenous woods of Europe, is of a reddish tinge, a fine grain, and susceptible of a very high polish, but requires to be thoroughly seasoned, for it is liable to split. It is much prized for making cogs to wheels, rollers, cylinders, blocks and pulleys, etc. In France it is preferred to all kinds of wood for making the screws to wine-presses.

"The fruit is not highly prized, and is more frequently eaten by the poor than by the rich. Where it abounds, there is a proverb which proves the estimation in which it is held; 'Ils ne mangent que de cormes' (they eat only *sorbs*), is employed to designate persons in the last stage of destitution and misery. Perry is manufactured from it in Brittany, which, though said to be excellent, has an unpleasant smell."

Loudon states that an aged and very large Sorb was (in 1829?) in a field adjoining the Brompton Park Nursery, where it was planted by London and Wise, this field then forming part of the nursery; it was then forty feet high and eighteen inches in diameter. It was also at Syon House and at Kew, in the Hammersmith Nursery, and Melbury Park, in Dorset, where was a tree estimated to be two hundred years old, eighty-two feet high, and three feet four inches in diameter.

There is one reported from Hagley, in the same county as Wyre Forest, which had then been planted nine years, and was eighteen feet high.

There is one at Gordon Castle, Banffshire. Several others are enumerated from Scotland and Ireland.

In Loudon's account it is stated that "the only plants of this species in its uncultivated state are in Wyre Forest and in the Arboretum at Milford." Trees are not wild in an arboretum, though they are so in a forest. There are however said to be traces of buildings near the station of the Whitty Pear, in Wyre Forest, which in some degree invalidate its claims to be considered as the natural growth of this locality.

When we were at Bewdley we heard the following anecdote, which confirms what our correspondent, Mr. Gissing, reports as the causes of the decay of this interesting relic. A botanist well known to all the botanists of the present age, being at Bewdley, and remembering that the Sorb-tree grew in this neighbourhood, before his departure, expressed a wish to an ostler or a groom well acquainted with the tree and its locality, to get a specimen of it. The person started off *instanter*, and soon returned with a load of branches, enough, we were told by our informant, to make a couple of good-sized fagots.

Note.—In a report of a visit to this tree in August, 1853, by the members of the Worcestershire Naturalists' Field-Club, there is the following account of the Sorb, which we extract for the benefit of such of our readers as have not the 'Phytologist' for that period at hand:—"The party examined the old *Pyrus domestica*, or the true Service-tree, the only one known of the kind, apparently wild, in any part of Britain. . . . It is thin and decrepit, quite bare of foliage below; it now extends its lank arms a considerable height in air, and is only verdant at the extremities of these lofty branches. In fact it is in the last stage of decay, and a few more years will probably leave it a mere weather-beaten trunk. Only this single tree of the *Pyrus domestica* has at any time been found within the forest precincts, and how it got there, is unknown; but it is probable there would have been others if it had been indigenous at the spot, the inference would seem to be that it was brought from abroad. Mr. Lees pointed out a mound of broken stones and *débris* now overgrown with brambles, not far from the tree, which seemed like the ruins of an old building, and suggested that a hermitage might have been formerly there, and the tree brought from Aquitaine by some recluse, in the time of Edward III., when the English, under the Black Prince, occupied that duchy."

An Address to the Contributors, Subscribers, and Friends of the 'Phytologist.' By the EDITORS.

At this season, when compliments and good wishes are as plentiful as "the leaves of the forest when summer is green," or blackberries in October, when the year is falling into "the sere and yellow leaf," we are admonished, both by our feelings and our conscience too, to offer respectful civilities to our supporters. On this occasion we have something to say to our contributors, something about ourselves and our past doings, and something about our future intentions.

First. To our contributors we tender our hearty thanks for their disinterested support, without which our journal, if it could exist at all, would want one of its most attractive features—variety. We may say, in the phrase of after-dinner orators, that although we do feel our obligations to all who have communicated to our pages either facts or opinions, we are unable adequately to express these feelings, and therefore we hope that they to whom we are indebted will accept of the *will for the deed.* It is unnecessary to particularize those who have mainly contributed to make the 'Phytologist' useful and attractive. They are well known as botanists and men of science, and their gratuitous contributions are ample proofs of their liberality and kindness,—an evidence that science enlarges the heart as well as the mind. To the *few* who have offered us their good counsel we owe a double debt of gratitude; and if it be impracticable to follow the counsel of every one who is generous enough to offer it, we can always derive some advantage from good advice; in cases where we cannot follow it, we can at least appreciate the motives and esteem the disinterestedness of the givers.

Second. What we have to say about ourselves is of a less agreeable tenour than the above; but as we acknowledge our obligations to our contributors, we think it our duty to admit our own shortcomings and deficiencies, delinquencies, or demerits, whether these be of omission or commission. We humbly thank those who have pointed out our failings, and for having had long patience with us till we had time and a convenient occasion for making this acknowledgment.

1st. The three allied forms of *Thalictrum, T. minus, T. flexuosum,* and *T. saxatile,* were admitted into the descriptive botanical part solely on the authority of Mr. Babington and of the authors or author of the London Catalogue. The descriptions are indeed taken from the former authority, and it is believed that *ipsissima verba,* the identical terms of the learned author of the Manual of British Plants, are employed. This however has not given satisfaction, and it is to us a subject of regret that we did not adhere to the old divisions of the forms into either *T. minus* with *T.*

majus as a variety, or have fallen back on the authority of the 'English Flora,' where these forms constitute two species, *T. minus* and *T. majus*. It is believed that this is still unsettled; and we beg as a favour, that some of our friends provided with a large *suite* of specimens will favour us with their views on this subject, or give us the means of clearing it up by contributing fresh or dry exemplars of these forms. If any or several of our numerous and kind correspondents will favour us with specimens of these three forms, or of any number of forms, we will do our best to distinguish them by brief and lucid distinctive characteristics. In our description *T. minus* is without any authority. There are high authorities, Grenier and Godron for example, who assert that *T. flexuosum* and *T. saxatile* are synonyms. "Who shall decide when doctors disagree?"

2nd. Our mistake about *Ranunculus confusus* was very good-naturedly pointed out by the eminent editor of the 'Journal of Botany,' and by another acute and zealous friend. On this head we beg leave to state that there was no intention of foisting on the science another element of *confusion*. *Nob.* was innocently quoted with Grenier's diagnosis, and believed at the moment to be the abbreviated form of some botanist's name who first established the species. The author of Descriptive British Botany, published in the 'Phytologist,' will not increase the number of species nor contribute to overburden the science with a weight of synonyms, under which he has serious apprehensions of its being ultimately swamped unless some naturalist with the keenness and influence of Linnæus speedily arise to rescue it from this its impending fate. Some of our correspondents have been so kind as to inform us that the range of the species is not in every case exactly coincident with that given by the indefatigable author of the 'Cybele Britannica.' This is admitted. We regret that we have not in *every case* availed ourselves of the very latest corrections; and we promise to enter in the 'Phytologist' all the discrepancies that exist between the ranges as printed in the 'Phytologist,' and as most recently corrected in the 'Cybele.' We have a still greater difficulty about this point. A much-valued friend has suggested that the author of the geographical distribution of the British species did not intend to specify the extreme range, either horizontal or vertical, but rather the *centre* or type of distribution. Our object most decidedly is to state the limits, both vertical and horizontal, between which a given species may be expected. We hope the difficulty of uniting both the *centres* with the *extremities* will not be insurmountable, but for the present we cannot thread our way out of the labyrinth, as it appears to us. But as we live to learn, as well as to teach, it is to be hoped that our kind friends, who know more of this matter than we do, will lend their aid to remove the obstructing *media* which hinder our seeing so clearly as they do.

In one of our recent numbers (we believe in that for November) we have made a more serious *faux pas*. This was anything but intentional on our part; and where no offence is intended, real offence is not given. Our primary object in making the remark which gave pain to the sensibilities of one of our most esteemed *collaborateurs* in the cause of science, arose entirely from a misapprehension of the object of his paper on the one hand, and, on the other, a desire to justify both Mr. Babington and his correspondent from what we deemed a harsh and unnecessary imputation. The author of the 'Manual,' we are satisfied, does not believe that he has exhausted the subject even on so limited an area as Great Britain and Ireland; and when we noticed in the 'Annals' a list of plants which were not in the 'Manual,' we concluded that it was intended to convey a reflection or a reproach on Mr. Babington, because either he or his correspondent had failed to see what a pair of sharper eyes had observed. We ought, we confess, to have discerned that this communication of recently-discovered plants was made in a spirit friendly to Mr. Babington; but this we did not see till it was too late; and all that we can say is, that we regret having pronounced so hasty a judgment, and offer to the contributors of additional Irish species, the *amende honorable* —the only reparation in our power. Another cause of our offending must be imputed to sheer ignorance. We were not so well read in the 'Manual' as it appears we ought to have been; and, above all, we had forgotten its learned author's hieroglyphics, or enigmatical system of abbreviations. This, we hope, is only a venial fault, or perhaps only a blemish not deserving of much censure. "*Felix quem faciunt aliena pericula cautum*"—he is a happy man who learns caution by his neighbour's mishaps. A wise man will receive instruction from his own failures.

We have, during the very short period of our editorial responsibilities, received a request that we would devote half a page to the explanation of the frontispiece or wrapper of the 'Phytologist.' We should be too happy of the privilege, and too proud of the honour, not to do this with the greatest alacrity, even if requested through a humbler channel than that which conveyed it to us.

In the first place we affirm, in all sincerity, that we were not actuated by pedantic motives when we adopted the device and the mottoes with which it is associated. It is true there are on our title-page four distinct languages: one of them is the past as well as the present language of our primitive ancestors, and the other is the descendant of the language of our Anglo-Saxon forefathers; or, in other words, the one is *Cymry* or *Cambro-British*, the other English. The Latin is the language of scientific and learned men throughout the world; the Greek is the language from which most sciences and scientific terms have derived their existence. The sense or meaning of our mottoes are as consistent in piety and good taste, as they are in suitability to our periodical. The Welsh motto, properly printed, should stand thus:

HEB DDUW,
HEB DDIM:

which may be freely rendered, "God is all-sufficient;" or, "He is sufficient for everything."*

This is a genuine motto, as we learn from the following anecdote, in the diary of Dr. Johnson's 'Tour in Wales.' In this tour Mrs. Thrale records an anecdote of the ignorance of a Welsh clergyman in Wales, which upon this occasion was very probably in Johnson's mind. "On the desk (the doctor writes) lay a folio Welsh Bible of black letter, which the curate cannot easily read. A Welsh parson (so wrote the lively Mrs. Thrale) of mean abilities, though a good heart, struck with reverence at the sight of Dr. Johnson, whom he had heard of as the greatest man living, could not find any words to answer his inquiries respecting a motto round somebody's arms, which adorned a tombstone in Ruabon churchyard. If I remember right, the words were—

HEB DW, HEB DYM;
DU O' DIGGON:

'There is nothing without God; He is all-sufficient;' and though of no very difficult construction, the gentleman seemed wholly confounded and unable to explain them, till Mr. Johnson, having picked out the meaning by little and little, said to the man, '*Heb* is a preposition, I believe, Sir; is it not?' My countryman, recovering some spirits upon the sudden question, cried out, 'So I humbly presume, Sir!' very comically."

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* *Literally*, "Without God, without nothing."—*A Welsh idiom.*

Ὡς ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—πάντα ἐν σοφίᾳ ἐποίησας.

"O Lord, how manifold are Thy works; in wisdom hast Thou made them all!"

"Benedicite universa germinantia in terra Domino; laudate et superexaltate EUM in secula."—*Hymn. iii. Pueror. v.* 76.

"Bless the Lord, everything that groweth on the earth; praise and magnify HIM for ever."—*Song of the Three Children* (*Shadrach, Meshech, and Abednego*), *Apocrypha, v.* 76.

We have now rendered our three outlandish inscriptions into plain English, and hope we have satisfied our curious readers, as we have quieted our own consciences.

There is another point urged against us, to which we mean to put in the plea of not guilty. It is urged in more than one quarter that the editor of the 'Phytologist' should not be anonymous. We justify this concealment, in our own case, by authority or common practice, by the ordinary dictates of prudence, and by other arguments which may be more easily conceived than stated. Some of our contributors prefer writing anonymously, and we do not think ourselves authorized to request them to lay aside their mask. We, with all possible deference to our friends, wish to remain *incognito*. We will sedulously avoid giving any umbrage to our scientific brethren, and when there is any valid reason for obtaining the name of any anonymous discoverer of facts which should be known to the promoters of science, we will not hesitate to give the address of any such contributor, confidentially of course.

We have still somewhat to say to our kind friends who appear to be concerned lest the dignity of science should suffer in our hands. We have indeed made a confession of our literary and scientific intentions at the very commencement of our undertaking, and we will not shrink from its avowal now. We profess to write for the many, but we do not therefore admit that we must necessarily compromise either the dignity of science or our own.

We have heard, although we hope it is not true, that there is a trace of *donnishness* among the professors and practitioners of botanical and other sciences. We do not say that this is the case; but if it be, we are anxious to prevent the charge being justly laid at our door. In another place we have given our opinions very candidly on this subject, and here we will only remark that all unnecessary use of technicalities is *pro tanto* a drag upon science. We profess to know the difference between affected puerilities and manly simplicity. We remember what was said of old by one of the *facillimè principes* of style, who enjoins on the Pisoes to write only on such subjects as they knew: *Sumite materiam æquam viribus.* We profess *"not to go beyond our depth;"* and never to employ a learned or a scientific word or phrase if a common word or a current expression will express our meaning with sufficient brevity, clearness, and force. We know technicalities are often unavoidable, but when they can be avoided, we think it both a mark of good nature as well as good manners to do so.

Something still remains to be said about the publication of Descriptive British Botany. Among botanists there is a prevalent feeling that we have already as much information about our native plants as we require, and this no doubt is true if we mean only to supply the wants of botanists. This however is not our aim. We write for the million, for those who *are* not botanists, but who may be induced to become so by rendering the acquirement of the science less onerous and expensive. We most decidedly assert that the portion of Descriptive Botany, publishing in the 'Phytologist,' is not meant to come into competition with the valuable and learned works of Hooker and Arnott, Babington, Macgillivray, Steele, Macreight, etc. Our labours may however be of some advantage even to those who have all these eminent works in their possession. But we write for a larger circle of readers and students than these famous men did. Our work will be, as it ought to be, of a more comprehensive nature than the above-mentioned works. There is of course no intention of reproducing the labours of our predecessors, eminent though they be, nor even an *olla podrida,* or hash, of the whole. We trust that there still exist sufficient materials for the compilation of as original a work as the subject will admit of. It has often been asked, why are we not satisfied with the characters already drawn up for the discrimination or identification of species, genera, and orders? We reply, because the characters usually given are not sufficiently explicit. They serve well enough for botanists who have an herbarium to consult, or accurate drawings to refer to, or botanical friends with whom to compare notes; but these descriptions of eleven words (the Linnæan canon only allows this number of vocables for the description of a species), or of twice eleven, are inadequate to supply the wants of a tyro. We have thought it a good practice to arrange our descriptions methodically, usually commencing with the vegetative organs, and then advancing to the reproductive; and it is thought conducive to clearness, as well as to system, to adhere strictly to this arrangement in the statement of these characters respectively.

Another important feature of our scheme is to illustrate most of the Orders by the figure of some well-known plant which is assumed as the representative of the Order under investigation. We are of opinion that the most important improvement to be introduced in a work, such as we contemplate, is the construction of a well-arranged glossarial index. This is indeed a new feature in a work on the British plants; but there is a pretty good precedent in Dr. Balfour's 'Manual.' Some of our contemporaries have asserted that the 'Vegetable Kingdom' of Dr. Lindley, and his 'School Botany,' with their various accompaniments, are amply sufficient to supply any reasonable want or expectation: this is true. But there may be some who like plants and cannot spare time for studying them in voluminous and expensive works. We know that there are many who cannot spare the funds requisite for possessing these learned books. We will do our best to spare both their time and their pockets, and consequently we expect support from those who are making strenuous exertions for the education of the humbler classes. We have at least the merit of good intentions, with which a certainplace is said to be paved. But we will do more, viz. endeavour to realize the sanguine hopes which have been indulged and encouraged in certain quarters.

We have now admitted our botanical and editorial misdoings, and attempted at least a justification of certain other doings, and we now leave our case to the merciful consideration of our readers, commending to their notice the old saw, *Humanum est errare, ignoscere divinum:* "To err is human, to forgive divine."

Something remains to be stated about our future intentions. We have already stated the principles on which we undertook the editorial management of the 'Phytologist.' Our motto is, and will be, *Nullius addicti jurare in verba magistri;* "Impartiality, justice to all." But as we grow older we get more experience, and the fruit of experience is, or should be, wisdom, and wisdom consists in making the most of our resources. Hence we are disposed to make some additions to the 'Phytologist,' and these will be of such a nature as will enable our contributors and correspondents to aid us more efficiently in making our Journal conducive to the progress of science and a genuine medium of communication between British botanists.

We are indebted to a friend for the improvement we propose to introduce, and we will not "plough with another man's heifer" without duly stating our obligations. A list of all common British plants will be entered in some future number of the 'Phytologist;' that is, of all such as are common both to Cornwall and Caithness, and where soil, situation, and other essentials are present, may be expected to occur in every county or even in every parish between the Land's End and John O'Groat's. When our kind contributors make out lists of species occurring in their respective vicinities we hope they will notice this list, and enter in their list, intended for us, such plants only as do not appear in our list of supposed or presumed universally distributed species. Excepting in such cases as the following, viz. when the plant we suppose common is scarce with them or absent, we hope they will state these facts, that our lists of such supposed universally distributed species may be amended.

We intend printing lists of plants peculiar to the eastern and western coasts, or rather divisions of the island; and we will then request our kind friends to verify or amend these as the case may be. We have, we own, some twinges of conscience when we think of long lists of plants inflicted upon our readers, and our sole *quietus* is that at present this is unavoidable. We hope that the publication of the lists above mentioned will remedy this complaint. The lists may be, for distinction's sake, marked A, B, and C: the first containing all the plants presumed to occur over the whole area of Great Britain; the second such as are eastern species, comprehending the Germanic, or English, or British types of distribution; third, the western plants, whether of the Atlantic, the English, or British types; a fourth list, inclusive of species which have an extensive vertical range, or which extend from the coast-line to our greatest elevations, may subsequently be added. On the construction and right application of these lists the suggestions or hints of those favourable to the progress of botanical geography may be expected.

Finally, it may be stated that although editorial opinions are rarely obtruded upon our readers, it is not to be inferred that we have no opinions of our own. We have our own views; but we extend to others the same liberty which we take to ourselves, and we profess to give publicity to all facts legitimately comprehended in our sphere, and to *all opinions* on the same, provided they be kept within due bounds. We have confidence in our contributors that they will in all cases rigidly adhere to the rule of doing to others as they would have others do to them, and consequently to respect every other man's opinion as his privilege and birthright.

We have now performed our duty to our readers and ourselves. We have acquitted ourselves of the obligations we owed to our contributors, and we have laid before them a scheme, which, if well carried out, will materially enhance the value of the 'Phytologist,' and, what is of still greater importance, will promote the advancement of sound botanical information.

Chelsea, December 20th, 1855.

Some Botanical Notes made during a Tour through a part of Ireland in June and July, 1855, *with occasional Remarks on Scenery, etc., in a Letter to the Editor. By* JOSEPH WOODS, F.L.S.

(*Continued from page* 159.)

I walked twice from Rossbeigh to the neighbourhood of Loch Garra, first to the lower part, whence we see the mass of Gheran Tuel rising magnificently above the lake and the nearer hills. This view is much finer than that of the Reeks, from the upper Lake of Killarney. My point of view would be a glorious situation for a nobleman's mansion, but alas! the whole neighbourhood is a bog. The second walk was to its upper part, where, with more foreground, we have a grand view of Gheran Tuel, and a fine spreading valley, not without wood; beyond, an extended arm of the Lake suggests the ideas of a high class of natural beauty, but here again the bogs are sadly in the way.

The soil of the south of Ireland is so dry, that you are told that although rain every day is more than is desirable, rain every other day is too little. With little wood and a soil so unretentive, the bogs are the chief reservoirs from which the streams are maintained; and if those were all reclaimed, there is danger that most of these would become alternately destructive torrents and dry beds of stones. In this second walk I met with *Bunium verticillatum* (*Carum verticillatum,* Koch, etc.), and hunted in vain through a very promising bit of wood, rocky and boggy, for some rarity.

Another excursion from Rossbeigh took me to the Lake of Coomasaharen, probably the finest mountain in Kerry. It is very much shorter than Coom na Capel, and the mountain is not so high as Mangerton, but there is a greater height of perpendicular cliff, and a mixture of wood adds something of a softer beauty to the scene. There is another lake higher up the mountain, which discharges its waters into this. The only rarity I found here was *Orchis albida;* but I conceive that something might be met with about the upper lake, or by coasting the rocks of the western extremity of the one I visited (the highest in the hollow), and crossing the neck to another lake situate at the foot of the mountain Drung. The mountains here are indeed not high enough for alpine plants, but in fact the south of Ireland yields no alpine plants, and very few which can be called subalpine; perhaps *Saxifraga stellaris* and one or two *Saxifragas* found on Brandon and on Gheran Tuel, and *Saxifraga aizoides* which grows on Connor Cliffs near Dingle, constitute the only examples. *S. umbrosa* and the others of that type which are found everywhere in Kerry, are not even mountain plants, though they ascend to a considerable height. This lake is accessible in a car, and I found a boat on the shore which took me at once to its upper end.

I left Rossbeigh in the mail-cart for Killarney. A violent but very local storm the preceding evening had so much damaged a bridge, that it seemed doubtful whether we should be able to proceed; but by unharnessing the horses and conducting the vehicle with much care over what remained of the structure, we passed without accident. The finest views of Gheran Tuel are, I think, from about Beaufort; and here we see how distinct it is from the Reeks, and the latter divide themselves from this point of view into a number of conical peaks, to which apparently they owe their name.

On the second visit to Killarney I took up my residence at Mucruss. In company with Mr. Hussey I went for some miles along the Kenmare road, to enjoy the magnificent views it affords of the Lakes, especially of the upper. Though so late in the season (18th July), we still found a few flowers of the *Pinguicula grandiflora*. *Polygala depressa* is, I think, very common in boggy ground in the south of Ireland, perhaps more common than the *vulgaris*. I here found it very well characterized; but it is one of the plants without any very decided character, which it is difficult to determine with certainty. In returning we visited the fall of Derricuinhy, where *H. tunbridgense* was growing on the rocks and *H. Wilsoni* on the trees; but this I think is not their common distribution. I also tried to find some romantic scenery on the brook of Cromiglaun, which I had visited in 1809, but I did not succeed. On another day Mr. Hussey and myself went to Coom na Capel: there is neither path nor road to it or up it, but it is well worth a visit. *Saxifraga stellaris* in one part was in considerable abundance, by no means a common plant in Kerry.

I should find it difficult to say which is the best inn of the two I have been at near Killarney. Each has its advantages; in both you are well treated and at a moderate expense. Tea not agreeing with me, I am accustomed to supply its place in the evening with a little hot milk, taking all the accessories just as if I had tea; for this at Mucruss they positively refused to make any charge, a proof at least that there was no disposition to take any unfair advantage of a traveller's peculiarities. The Lake Hotel has the advantage in boating and the exquisite view it possesses; Mucruss Hotel has a pleasanter neighbourhood. In both, and probably in all these new-built inns about Killarney, I complain that the bedrooms appropriated to single travellers are very small and deficient in convenience, so that you have no place in which to dispose your travelling gear, and must pack and unpack your trunk every day, or leave your chattels on the floor. The most complete arrangement of a small room is probably that at Rossbeigh, where, in a space about fourteen feet by eight, we have a bed, fireplace, chest of drawers, dressing-table, and washing-stand. By a rather odd arrangement, the bedrooms intended for two persons are mostly without a fireplace, both at Mucruss and the Lake Hotel, while those for single persons generally have it.

I left Killarney on the 19th of July, going by rail to Carrick-on-Suir, and the next day paid a visit to a hollow in the Commerach mountains, containing a pool (Loch Looscannagh) of about forty acres. A good road will take you close to the foot of the mountain; but the rocks are so dry, that you soon give up hopes of getting anything from them. There are pools higher up, and there is also a tract of bog on the mountain-top, and perhaps there something might be found. I gathered *Saxifraga hypnoides*, which I had not before seen in this ramble. Three days later I went from Waterford to Tramore, and botanized, first on a sandy track to the east of the town, whence I observed the very pretty *Convulvulus Soldanella*, and *Euphorbia portlandica*. *Juncus acutus* was also there, and a very handsome variety of *Erythræa Centaurium*. There was also a rayless form of *Senecio Jacobæa*. Afterwards I visited the very broken and rugged rocks to the west, and had great pleasure in observing the quantity of *Inula crithmoides*. *Crithmum maritimum* and *Rubia peregrina*, among the lesser rarities, were also conspicuous. On the 24th I left Waterford and Ireland, and a passage of about twenty-four hours landed me at the Cumberland basin at Clifton.

J. W.

Priory Crescent, Lewes, 21st August, 1855.

Isolated Stations of Plants.

Besides the two very comprehensive classes of causes selected by the writer of the short notice in the 'Phytologist' (page 120), namely, "Geological and Atmospherical," may we not suppose that there is yet a third reason for the unequal distribution of plants, to be sought in the comparative constitutional vigour and reproductive powers of the different species? For now that plants have fulfilled their object, and occupied the soil, is not a strong race found to hold its own, nay, to encroach, while one of weaker powers gives way in proportion, and dwindles down to a few scattered stations, being either ousted by the more vigorous stock, or finding the localities to which it might extend already appropriated?

Is not such our present experience, and such as we may conjecture to have been the course in past time? Besides, no slight modifications may have arisen from the drying of the surface, whether natural or artificial, and this case is especially applicable to the narrowed range of aquatics such as *Scheuchzeria* (claimed, I believe, by certain other counties besides Yorkshire), to say nothing of the imperfect nature of negative evidence regarding an inconspicuous species. But if we have any species peculiarly British, as we have a Grouse, then must we suppose that it is the remains of a restricted dissemination which perhaps originated on that spot where we see it still. Such instances however appear exceptional in the case of a district severed from a great continent, whence there was no difficulty in deriving its flora, though of course even the edge of a continent would have contained centres much fewer in number than the central region.

Far different were the opportunities for acquisition in a far isolated island, and there indeed we do find ample evidence of a separate creation; where there was need, there was the Hand to supply the want: and thence the origin of those remarkably distinct faunas and floras of which we have experience.

On the assumption too of "specific centres," with the assistance of the late Professor E. Forbes's theory, there will perhaps be little difficulty in accounting for the peculiar position of *Lloydia serotina;* nay, is not the highest of our southern group of mountains the very place where we should expect to find a native of the continental Alps, and sparingly, as in an outlying station?

Similarly we might ascribe the limited range, with us, of the *Actæa,* to its being a member of the "Germanic Flora," at its furthest radiation, as well as to its partiality for limestone.

And here it may perhaps be allowed to observe, that in our humble opinion the chemical, as well as the mechanical influence of soil, might well form a branch of study distinct from the geological, which latter term would then be restricted to the explanation of the manner and degree in which the dissemination of species has been affected by the rising, subsidence, and dislocation of land.

For further insight into the working of mineral causes, I presume we must look to chemical analysis and the microscope, to say nothing of the effect which a hot, parching limestone-soil may have towards producing a dry and rigid structure. The 'Phytologist' has put forth a great challenge, may we find a champion able to take it up! At best we can but hope to discover those peculiarities of construction by which each organism is so marvellously adapted to its own circumstances of existence; and the closer we look, the more shall we have cause to admire the handiwork of the all-wise Creator. To push our inquiries further than this, were to endeavour to intrude upon the secret mysteries of life itself. G.

An Epitome of Botanical Tours in Wales from the earliest period. (*Giraldus Cambrensis and Johnson.*)

The first Welsh itinerary known is the work of Giraldus Cambrensis, a dignified clergyman, and a native of the Principality. He was both Archdeacon and temporary Bishop of St. David's. This learned man, who has the reputation of being rather credulous (credulity was the failing of literary men in those days), accompanied Archbishop Baldwin, who travelled with his retinue through Wales in 1188, as a preacher of the Crusade then preparing by Henry II., and subsequently conducted by Richard Cœur-de-Lion;—we believe the last time the arms of France and England were marshaled together on the same battle-field and engaged in the same cause, till our days, when the same hosts are allied in maintaining the system which they then sought to overthrow. But our business is with Welsh plants and Welsh tours, not with the Crescent, nor with those who uphold it. The learned Archdeacon presented the world with the fruit of his peregrinations and observations in his 'Itinerarium Cambriæ,' the earliest topographical account we have of Wales, or indeed of any portion of Britain, excepting the meagre notices left us by the Romans. Archbishop Baldwin was a learned man, as well as one of the highest dignitaries of the Church; and his name is honourably enrolled among British authors, and his works are still extant and appreciated by the learned. He not only preached the duty of taking up arms in the cause of the *Cross*, but, like many churchmen of that period, he lent the vigour of his arm, as well as the eloquence of his tongue, in its support. He died in Palestine, in the camp, 1191, three years after his journey through Wales was accomplished. This valiant churchman, like our author, the learned Archdeacon, appears from the following anecdote to have been a *humorist*. After he and his party had toiled up a rather steep acclivity in North Wales, where there are many such, and being a little *blown* with his exertions, he asked one of his rather *pursy* attendants to whistle. This was a feat exceeding difficult in their condition. During their enjoyment of this jocose raillery, some one remarked that a blackbird was just then whistling, and further said he was sure it was not the nightingale. The Archbishop coolly remarked, that the nightingale took wise counsel, and did not visit Wales, but that he and his party had followed unwise counsel, for that they had not only penetrated into Wales, but had travelled through it from south to north. The Archdeacon seems to have relished this pleasantry, and relates it as a proof of the good humour of his superior. Many great men of our own, and of a more recent time than this, have had remarks respecting them recorded of a less creditable and more undignified nature than this of the Archbishop's. As our business is with North Wales, we only notice some of the singularities noticed by the Archdeacon in this part of the Principality. "The Teivi," he informs his readers, "has another singular particularity, being the only river in Wales, or even in England, that has beavers. In Scotland they are said to be found in one river, but are very scarce." We shall meet with another singularity noticed with the same reference to Scotland, which in these days was a *terra incognita* to every South Briton, whether Celt or Saxon. Our author then details the modes whereby these creatures conveyed materials from the woods to the river, viz. by lying down on their back while some of their companions laid a beam on the prostrate beast, and then dragged him with his load to the place where they were to erect their dwellings (castles, the Archdeacon calls them): he gives a long account of their defence of these strongholds. The party slept the first night after entering North Wales at Towyn (it may be interesting to such of our readers as mean to visit North Wales to know the route by which these distinguished travellers journeyed), and the next night rested at Llanfair, near Harlech. As he does not notice the castle, it may be presumed that it did not then exist, or, if there was any defensible erection on the rock where the remains of the castle now are, it was in his time insignificant. Edward the First, the great castle-builder in Wales, was not born till many years after Giraldus wrote his Itinerary. The culminating point, or object of every North Wales tourist, is Snowdon; and this interesting region is not unnoticed in the graphic pages of our lively author. "I must not," he continues, "pass over in silence the mountains called by the Welsh *Eryri*, and by the English Snowdon, or mountains of snow. . . . They are said to be of so great extent that, according to an ancient proverb, 'As Mona (Anglesea) could supply corn for all the inhabitants of Wales, so could the *Eryri* mountains afford sufficient pasture for all the herds, if collected together.' Hence Virgil's lines may be applied to them:

"Et quantum longis carpent armenta diebus,
Exiguâ tantum gelidus ros nocte reponit;"

or, as in English:—

"And what is cropp'd by day the night renews,
Shedding refreshful stores of cooling dews."

We had reason to bear our feeble testimony to the truth of part of Girald's account. When we were in this region, nearly seven hundred years after the Archdeacon's visit, the dews were indeed copious, and rather unpleasantly cool, but the grass to be renewed or refreshed thereby was very scanty. The dimensions of Snowdonia, enveloped as it generally is in cloud and mist, are imaginary or fabulous. A clear day, to observe the extent of this mountainous tract, is a phenomenon of rare occurrence. We are disposed to refer to the author's belief in the immensity and fertility of this mountain as a proof of his credulity. Anglesea is fertile, and abounds in corn; but the flocks and herds of Snowdon are few, and as inferior in numbers as in breed and condition. If there was any *vraisemblance* in the comparison expressed by the proverb, Snowdon has remarkably deteriorated. "On the high part of these mountains," our author continues, "there are two lakes worthy of notice: the one has a floating island in it, which is often driven from one side to the other by the force of the winds, and the shepherds behold with astonishment their cattle whilst feeding carried to a distant part of the lake. The other lake is noted for a wonderful and singular miracle: it contains three sorts of fish, eels, trout, and perch, all of which have only one eye. But if the curious reader should demand of me the explanation of so extraordinary a circumstance, I cannot presume to satisfy him." Our author however states another circumstance, nearly as wonderful as this, viz. "that in two places in Scotland, the one near the eastern and the other near the western sea, the fish called mullets possess the same defect, having no left eye."

The lake thus noticed by Giraldus is understood to be the small lake Llyn-y-Dywarchen (the Pool of the Sod), about a couple of miles from Beddgelert, and reported to be about as large as a good-sized horsepond. Here the floating island is said to be still in existence (only a small piece of the turbary detached from the bank), and it bears a small willow, and does occasionally shift its station. As the entire extent of this lake is very small, we must consider the floating island, with the cattle carried to a distant part of the lake, as a poetical embellishment, like the description of Merionethshire by the same author, who says that the mountains of this country were both high and perpendicular, and in many places so grouped together that shepherds talking or quarrelling on their summits could scarcely meet in a whole day's journey. (See 'Phytologist,' p. 33, N.S.) The lake, or pool, it appears, does contain a floating island, but no author states that it supplies pasturage for sheep and herds of cattle; the shepherds and their flocks are the amusing creations of the traveller, who appears to have exercised a traveller's liberty.

Mr. Pennant, without giving his authority, says that the lake remarkable for the one-eyed fish is Llyn-y-Cwn, one of the most elevated lakes in Wales, and more famous for producing rare plants,—as *Lobelia Dortmanna, Subularia aquatica, Isoetes lacustris,* and such-like,—than for containing fish of any sort. One of our crabby chroniclers (is it Speed?) tells us that we had better believe Giraldus, than take the trouble of disproving the marvellous account by going there to see. From this district the Crusaders travelled to Ruthlan (Rhuddlan) and St. Asaph, and thence by Chester to Shrewsbury. Conway was not celebrated at this early period. The ruthless conqueror of Wales had not then arisen, and the magnificent castles, towers, and walls of Carnarvon, Beaumaris, and Conway had not yet been founded. Wales then belonged to the Welsh; or they paid at the most but a nominal subjection to the King of England as their superior. Castles there were then in Wales (in Girald's times), but their ruins differ from those erected at a later period. All are now in ruins, both the Welsh strongholds and the imposing structures of Edward the First; their remains exist as monuments and evidences of the mutability of earthly things. We hope our readers will excuse our brief notice of this venerable tourist, the first who published an account of his native country, of which he was one of the most distinguished ornaments. We may also state that his work is rather moral than physical; he deals chiefly with the religious, political, and social state of his countrymen, and only incidentally notices the physical state and productions of his country. Respect for the memory of a learned and zealous churchman, and especially a desire to do honour to the first Welsh tourist, have induced us to introduce our notice of all the botanical tours in North Wales with this very incomplete account of the Itinerary of Giraldus Cambrensis.

The first professedly botanical tour in Wales was undertaken by Mr. Thomas Johnson, better known as the learned editor and emendator of Gerarde's Herbal than as a traveller. In those days a journey to Wales was more formidable than a journey to the Alps or the Pyrenees is in our times, and a man who had accomplished the Scottish or Welsh tour was regarded with considerable deference by his less enterprising neighbours.

Johnson appears to have been the first Englishman who travelled into many and remote parts of his native land, solely with a view of ascertaining its indigenous or native produce. His tour into Wales is the last of a series of excessively rare tracts, which have recently been elegantly reprinted in *facsimile*, and are obtainable at the office of our Journal. British botanists are indebted both to the publisher (Mr. Pamplin) and to the editor (Mr. Ralph) of these interesting tracts, for an elegant edition of what few lovers of English botany could ever have any rational prospect of even seeing. The only known copy of the originals is in the British Museum, being part of the valuable library of Sir Joseph Banks, who bequeathed both it and his Herbarium to the great national collection. This series of tracts, as reprinted, is entitled 'Opuscula omnia Botanica Thomæ Johnsoni,' etc., and contains the following:—

1. Iter Plantarum investigationis ergo susceptum a decem sociis in agrum Cantianum (Kent), Anno Domini 1629, Julii 13. Ericetum Hamstedianum, sive Plantarum ibi crescentium obser-

vatio habita anno eodem, 1 Augusti. Descripta studio et opera Thomæ Johnsoni. Londini, 1629.

2. Mercurius Botanicus, sive Plantarum gratia suscepti itineris anno M.DC.XXXIV. descriptio, cum earum nominibus Latinis et Anglicis. Huic accessit de Thermis Bathonicis Tractatus. Londini, M.DC.XXXIV.

3. Mercurii Botanici pars altera, sive Plantarum gratia suscepti in Cambriam, sive Walliam, descriptio; exhibens reliquarum stirpium nostratium quæ in priore parte non enumerabantur Catalogum. Londini, M.DC.XLI.

The last of these tracts, as we see by the titles above given, contains the tour in Wales, which was printed in 1641; but the party travelled two years previously to this date. The author was accompanied by Mr. Paul Sone and by Mr. Edward Morgan, who knew the Welsh language, and was also a herbalist. They went by Henley-in-Arden, Birmingham (Bremicham)—at that early period renowned for forges (Vulcani municipium); thence to Wolverhampton, and through Newport in Salop, to Chester, where they were joined by another associate, the Rev. Walter Stonehouse. Cheshire in those days does not appear to have been renowned for its innkeeping, if we may judge of the stock by the sample, according to the old saying, *ex uno disce omnes.* One of our travellers wrote on the wall of the room wherein he slept the following valedictory lines:—

"*Si mores cupias venustiores,*
Si lectum placidum, dapes salubres,
Si sumptum modicum, hospitem facetum,
Ancellam nitidam, impigrum ministrum,
Huc diverte, Viator, dolebis."

We will not venture to translate this effusion; but it means briefly, if you like civility, clean sheets, eatable viands, attention, and moderate charges, pass this *hospitium.* The party entered Wales by Chester, and journeyed by Flint and Holywell (Haliwell) to Conway, where they were hospitably received by Mr. Robert Wynn, of Bodskalan. From Conway they travelled over Pen-maen-bahen and Pen-maen-mawr, or the lesser and greater promontory, and through Bangor to Carnarvon. The journey from London to Carnarvon was accomplished in twelve days: they left London on the 22nd of July, and on the 3rd of August, 1639, they ascended Snowdon (Widhfa), the loftiest of the British alps, as our author observes:

> "Hic montes alios inter caput extulit altos
> Quantum lenta solent inter Viburna Cupressi."

The mountain was then, as it often is now, enveloped in a mantle of thick fog (*Scoticè,* mist), which has the proverbial reputation of *wetting an Englishman to the skin.*

The travellers having procured the services of a rustic youth as guide, left their horses and upper coats at the base, and commenced their painful ascent. The awful precipitous rocks and the gloomy Stygian lakes are noticed in becoming terms by the narrator of the incidents of this ascent; but it might be a question whether the party really visited the summit of Snowdon or the opposite mountain, Glyder-vawr. The "*Stygiæ paludes, quarum maxima Dæmonis domicilium ab incolis vocatur,*" may be applied to Twll-Du and Llyn Idwal, where, as it is recorded in the early times of Welsh history, Idwal, the infant heir of Owen Gwynedd, was drowned by his foster-father. *Dæmonis domicilium* might not very inaptly be rendered "Devil's Kitchen," the name by which the horrid chasm of Twll-Du is still designated. Johnson *loquitur:* "Sed quando ventum est, ut ulterius in jugo progredi non potuerimus, illic inter nubula consedimus; primoque plantas inter saxa et præcipitia periculosè collectas in ordinem digessimus, deinde viaticum nobiscum allatum sumpsimus;" *i. e.* we did our work first, and then sat down to our lunch; a practice which we can recommend to the amiable fraternity that bear the *vasculum:* botanizing after dinner, or even after luncheon, is unsatisfactory. He then enumerates the less common plants collected in this locality, viz. *Nasturtium petræum* (*Arabis petræa?* or *Hutchinsia petræa?*), *Oxalis rotundifolia* (Oxyria reniformis), *Viola Martia palustris* (V. palustris), *Serpyllum hirsutum* (Thymus Serpyllum), not a rare plant, *Rhodia Radix* (Sedum Rhodiola), *Caryophyllus montanus minimus* (Silene acaulis), *Sedum rotundifolium serratum* (Saxifraga stellaris?), *Sedum minus flore albido* (S. Anglicum), *Cotyledon sive Sedum petræum hirsutum* (? Sedum villosum), *Gentianella Bavarica* (Gentiana amarella), . . . *Carduus mollis* (C. heterophyllus), *Salix humilis saxatilis* (S. herbacea), *Filix petræa elegans* (Allosorus crispus). Also the following maritime plants: *Gramen junceum marinum* (Juncus acutus?), *Caryophyllus marinus* (Armeria maritima).

Having left the mountain before evening, the party reached Glynnlhivon, and there rested the following day. They subsequently passed the strait, and visited the south-west corner of Mona (Anglesea). On rocks by the shore *Statice Limonium* and *Crithmum maritimum,* with *Asplenimum marinum,* were collected. Here also a variety of *Jacea tricolor* (Viola tricolor?; *V. lutea* is not noticed by Davies) ornamented the banks and barren plain; also a few plants of *Centaurium minus,* only two inches high (*? Erythræa littoralis*). Among the sand-hills grew *Tithymalus Paralias* (Euphorbia Paralias), and the Sea-rush, of which the natives make cordage, in great abundance. In the same locality, or near it, *Triorchis* (Spiranthes autumnalis) and *Lathyrus major angustifolius* (Lathyrus sylvestris?) abounded.

Our botanists returned to Bangor from Anglesea, and leaving Bangor, reached a rustic village called Lhan-lhechid. Here they appear to have engaged the services of a guide to the famous mountain, Carnedh-lhewellyn, *sed progressi cœlo admodum pluvioso parum proficimus* (the rain made our progress tedious and toilsome). The summit was of course enveloped in dense clouds, and the guide was too timid to lead them to the precipitous rocks, where the rare plants grow. Our author states that these hills supply pasture for both sheep and cattle. The rustic guide said the eagles had nests and young in these crags; and they frightened the sheep over the rocks, and thus they usually procured their prey. Between the tempestuous weather and the cowardice of the guide our travellers obtained on this mountain little or nothing worth notice, except *Gramen Sparteum spicâ foliaceâ majus* (is this Mat-weed *Nardus,* or a viviparous form of *Festuca?*) and *Consolida media, flore cæruleo alpinum* (an alpine form of *Ajuga reptans*).

(*To be continued.*)

Reviews.

The Microscope, and its application to Vegetable Anatomy and Physiology. By DR. HERMANN SCHACHT; *edited by* FREDERICK CURREY, M.A. Second edition. Highley, Fleet-street.

It is now upwards of one hundred years since Baker's 'Treatise on the Microscope' was published. At that period the science of optics was either not so well understood as it is now, or its practical application was not so fully comprehended as it is in our times. But the knowledge of microscopy, as a science, has not advanced so rapidly as the means for its attainment. About thirty years ago the only good lenses were of foreign manufacture. In our younger days Munich had the reputation of manufacturing the best magnifying glasses. In these days we believe that no one acquainted with the subject doubts the immense superiority of English microscopical instruments.

In the work before us there is a very succinct account of the elementary principles of optics, such as are essential to a comprehension of the microscope itself. Another portion contains a description of different kinds of microscopes; the third gives an account of accessory apparatus, chemical re-agents, etc., necessary for microscopical investigations in botany. We are glad to see that microscopes are now to be obtained at a cheaper rate than those manufactured by Ross, whose instruments, though of first-rate excellence, are generally too expensive to suit the means of the majority of botanists. A very useful form of microscope is represented in the frontispiece of this work, which may be obtained at a moderate price.

We quote the following passage on axillary buds, as a specimen of the style, etc., of the work:—

> The *axillary bud* consists at first of a small conical protuberance, which afterwards becomes elongated, and forms what may be called the bud-stem; the rudiments of leaves originate under its apex, and in those cases where the bud does not immediately become developed into a branch or leaf, these rudiments ultimately form scales. Under the protection of these scales the *punctum vegetationis* rests for a period, after which new leaves are formed beneath it, which either continue covered by the scales during the winter, or break out immediately and complete their development, as in the case of what are called the second shoots of trees. In the leaf-buds of annuals, which are immediately developed, scales are seldom found. Flower-buds cannot at first be distinguished from leaf-buds.

With another quotation we must conclude our notice of this useful book.

> The pollen of the *Coniferæ* and *Cycadeæ*, if once dried, never becomes sufficiently saturated to enable the observer to come to any conclusion as to the division of its pollen-cell. This investigation, therefore, can only be undertaken with fresh pollen. It is then seen that the *Cycadeæ* of our

hothouses frequently do not ripen their pollen. In the Botanical Garden of Berlin, the pollen of a *Zamia* was found to be imperfect, that is, its contents were shrivelled up. In *Juniperus communis*, where the pollen-grain lies for a year apparently inactive upon the nucleus of the ovule, the division of the pollen-cell seems to take place for the first time in the second spring; even in *Taxus*, where the pollen-grain lies inactive upon the nucleus for some weeks, the division of the pollen-cell not unfrequently takes place within the anthers; in *Thuja* and *Cupressus* the division may be seen even before the shedding of the pollen. The same thing occurs in *Larix*, *Abies*, *Picea*, and even in *Pinus*, although the pollen-tubes of the latter do not reach the embryo-sac and corpuscula until the following year.

In page 159 we find a reference to a figure which we do not see; and in page 125 we notice *Chlamidococcus* is translated by *red show;* we suppose this may be a misprint for *red snow.* We cordially recommend this work, believing it to be the best on the subject, if not the only one, and certainly will be the means of furthering the sciences of vegetable anatomy and physiology.

BOTANICAL NOTES, NOTICES, AND QUERIES.

To the Editor of the 'Phytologist.'

Sir,—In Hooker's 'Journal of Botany and Kew Garden Miscellany' there is an article, by the editor, on "*Asplenium fontanum*, Br., a British plant." British botanists are indebted to the learned editor of the 'Journal' for his remarks on the claims of this plant to a place in the British flora; and as the 'Kew Miscellany' may not come into the hands of all who read the 'Phytologist,' a notice to the same effect will probably be acceptable to many of your readers.

Hudson refers to the plant under the name of *Polypodium fontanum*, ed. 1762, and after quoting Hall, Bauhin, and Plukenet, gives the habitat as follows:—"Habitat in fissuris rupium et muris antiquis." This is the general locality or habitat. The next is special:—"Supra Hamersham Church, *D. Bradney*." Again, "In *locis saxosis supra* Wybourn, in Westmorlandia." There fortunately exists another testimony to the existence of this plant on Amersham Church, although like Hudson's authority it is of an ancient date. In the Herbarium of Mr. Lightfoot, formerly in the possession of Queen Charlotte, now in that of Mr. Brown, there are specimens of this plant, named in the handwriting of Lightfoot, and its places of growth stated as follows:—"Upon the rocks about Wybourn, Westmorland" (? Cumberland); and again, "This I gathered on Ammersham Church, Bucks." The following remark is a judicious one:—"One does not see well how the accuracy of this statement can be called in question."

The Rev. Mr. Bloxam has the credit of causing two new localities to be recorded in the 'Phytologist,' one between Tan-y-Bwlch and Tremadoc, and the other in the Isle of Purbeck, Dorsetshire.

The next published station is near Petersfield, Hants (not Petersham, Surrey, as it is stated in the 'Journal of Botany'), on an old wall, where it grows abundantly, with other wall-ferns. Mr. Brown, it appears from said article, has specimens sent from the neighbourhood of Alnwick Castle, Northumberland.

The only certain locality for this rarity appears to be the Petersfield one, from which the writer of this note had specimens, some of which he sent to the Botanical Society of London, and this subsequently appeared in print in a report of their proceedings. Mr. Bloxam would do a kindness to the readers of the 'Phytologist' if he would send specimens, or a specimen, of *Asplenium fontanum*, Br., either to the editor of the 'Phytologist,' or to the Secretary of the Botanical Society of London.

The Cumbrian and Northumbrian stations are worth visiting, both for the sake of *Asplenium fontanum*, as well as for other rarities which they are likely to produce. For the latter, application should be made to the gardeners at Alnwick Castle; and for the former, the aid of some of the guides in the Lake district might be available. B. A.

Note.—We thank our Correspondent, and hope our botanical friends will take the hint, and look for this interesting plant, so long ignored as a British production by the highest authorities. We particularly urge them to direct their scrutiny to Amersham Church, which appears to have been a genuine station for the plant in the eighteenth century. This locality, however, is not in Berkshire, as stated in the 'Kew Miscellany,' but in the great vale of Bucks, in the high road from Uxbridge to Buckingham. Tan-y-Bwlch and Tremadoc, or between them, is also a likely locality, but these places are not in South Wales, as we are informed in the 'Journal,' but in North Wales, and almost in the high-road between Dolgelley and Beddgelert, through Maentwrog.

We also subjoin Sir James E. Smith's account of the locality where this Fern once grew:—"On Amersham or Agmodesham Church, Bucks, found by a Mr. Bradney [Do any of our readers know any particulars about this ancient collector of Ferns?], according to Mr. Hudson, and from whence it was brought alive to Kew Garden by the late Mr. Aiton, from whom I have a specimen; but the church has been whitewashed and the plant destroyed. Mr. Hudson gathered the same in a stony situation near Wybourn in Westmoreland, or rather perhaps Wiborn in Cumberland."

In the second volume of Huc's 'Travels in Tartary and Thibet' (p. 86) is an account of a Fern (that is also common in France) being eaten as a most delicate vegetable after being simply boiled in an early stage of its growth. "Another dish," says the author, "was furnished by a plant very common in France, and the merit of which has never yet been adequately appreciated: we refer to the young stems of Fern. When these are gathered quite tender, before they are covered with down, and while the first leaves are bent and rolled up in themselves, you have only to boil them in pure water to realize a dish of delicious asparagus." Can any of your readers say if the Fern spoken of resembles in any way any English species? if so, it would prove a great boon to the table of the cottagers in England. W. W.

GEOGRAPHY OF PLANTS.—*De Candolle's System of Botanical Geography.*—Sir,—In the 'Gardeners' Chronicle' of September 15th, there is a notice of the above work, and in this notice it is stated that, with the exception "of Humboldt's 'Essai sur la Géographie des Plantes,' published in 1805, and Brown's 'Appendix to Flinders' Voyage to Australia,' and Tuckey's 'Voyage to the Congo,' little had been done up to Schouw's time towards combining all into a general whole," etc. This is partly correct and partly defective. Humboldt published, on this subject, another treatise in Latin, in 1817, entitled 'De Distributione geographica Plantarum cœli temperiem et altitudinem montium, Prolegomena,' etc. Since Schouw's time independently of Watson and Forbes' efforts in this line, there is an elaborate work by another German botanist, published several years posterior to Schouw's 'Pflanzen Geographie' (Geography of Plants), which deserves honourable mention. This work of Meyen's was translated by Miss Austin (?), and published by the Ray Society some seven or eight years ago. Mr. Watson's work on the Geographical Distribution of Plants is limited to the range of the British Species. Does the reviewer mean this gentleman's earlier works on the Geography of Plants, or the more elaborate work entitled 'Cybele'? The Editor of the 'Phytologist' will doubtless supply the omission of the 'Chronicle,' and inform the botanical public that Meyen's 'Geography of Plants' is to be had, both in the original German and in the English translation, as published by the Ray Society for distribution to members only. Other works on this branch of botanical science have been published in Germany, but Meyen's is the only treatise on the general subject which is accessible to the mere English reader. Humboldt's works are, it is apprehended, but little known: this may be inferred from the fact of a reviewer in the 'Gardeners' Chronicle' ignoring Humboldt's more recent and concise work. BOTANICA.

Lecanora rubra, Ach. (p. 159).—The Rev. T. Salwey, in his "List of scarcer Lichens found in the neighbourhood of Oswestry and Ludlow," Shropshire, in Trans. Edin. Bot. Soc., 2209, states that the only two habitats he knew for it are "upon the walls of Wigmore Castle, in Herefordshire, and at Craig-y-Rhu, in the parish of Oswestry. In both habitats the plant grows upon patches of decayed *Hypna* hanging loose from the stone." From the former locality I have a specimen given me by Mr. Salwey. On 18th July, 1850, he and I searched Craig-y-Rhu for it, but without success; nevertheless, as this place is only a portion of a long extended range of limestone rocks, it doubtless exists there still, and its discovery may probably reward some future researches.

Shrewsbury, Nov. 16th, 1855. W. A. LEIGHTON.

Neottia (Spiranthes) æstivalis.—Since I wrote to you I have visited the habitat of *Neottia æstivalis* in the New Forest; it is indeed *very rare.* Last year it did not appear in Jersey in Babington's habitat, and I am expecting to hear shortly whether it has shown itself this year. I have always found the re-appearance of Orchids so very uncertain, that it is impossible to say where one of the tribe *has* been for many years. I hear *Agrimonia odorata* has been discovered in Worcestershire,—another good addition. T. W. G.

Campanula latifolia.—Mr. Editor,—Can you tell us why the above-named plant is omitted in Dr. Windsor's list of Settle plants? Is *it* one of the very common plants there? *C. rotundifolia* is stated as not uncommon under stone walls: is this less common than *C. latifolia?* VIGIL.

Timber.—It has been said that the timber of trees grown on the northern declivities of hills is denser and of more durability than that produced on the southern side of the same locality; also that timber cut from the side of a tree which was growing opposite to the north is finer than what is cut from the south side of the same tree. Will any of your readers be so obliging as to verify these assertions? SYLVANUS.

Rumex scutatus.—In the 'Supplement to the Flora of Yorkshire,' p. 110, I have written, "The Silverdale locality, on faith of which the species is admitted as a naturalized Yorkshire plant in the 'Cybele Britannica,' is in Lancashire." I now learn that there are two dales of this name,—one near Arnside Knot-in-Lake, Lancashire, and the other, a small branch of Ribblesdale, running westward from Malham Moor, and that it is in the latter, which is in Yorkshire, that the *Rumex* grows. Judging by its appearance from a distance, it is very difficult to imagine how the plant has become naturalized in such a wild-looking locality.

Thirsk, Yorkshire, August 9th, 1855. J. G. BAKER.

Nasturtium anceps (British Botany, p. 37).—The plant so named, of which you copy a description from Grenier and Godron, is different from that of Britain, which is only a form of *sylvestre.* (*Vide* Bab. Man., third edition.) J. G. BAKER.

Communications have been received from

J. G. Baker (two communications); Censor; E. J.; Vigil; Sylvanus; Rev. C. Smith (Reigate); Fullo; Z.; J. Windsor, F.L.S.; Omega; Non-Œdipus; A. G. More; Sphinx; J. Gifford; G. B. Wollaston; Q.; Isaac Carroll; Rev. W. A. Leighton; W. L. Lindsay (two communications); Rev. Hugh A. Stowell (Faversham); Tyro; Antiquus; Senex; Viator.

We have still to apologize to several of our kind Correspondents, whose valuable communications are unavoidably postponed. Our arrears of matter would fill at least three numbers.

BOOKS RECEIVED FOR REVIEW.

Baker's Attempt to classify British Plants by their Geognostic Relations.
Sowerby's Fern Allies, Part II.
Catalogue of the Vasculares or Flowering Plants of Britain.
Notes on Books (Longmans).

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Various Notes on British Orchideæ. *By* G. B. Wollaston.

	First appearance above ground.	First in Flower.	Number of Flowers.	Height of Plant.	
				Ft.	In.
Orchis Morio	October .	May 18			
„ mascula	December	April			
„ fusca	December	May 18			
„ militaris*	January 1	May 20			
„ macra*	Oct. 7–30	May 23			
„ ustulata	Sept. 10	May 14			
„ laxiflora	Sept. 10				
„ maculata	Feb. 21				
„ latifolia†	. .	May 22			
„ hircina	Sept. 19	June 25	104	4	4
Gymnadenia conopsea	Feb. 7 .	June 9			
Aceras anthropophora	November	May 23			
Habenaria viridis	. .	May 26			
„ chlorantha	. .	May 31			
Ophrys apifera	. .	June 13	16	2	$10\frac{1}{2}$
„ arachnites	Sept. 9 .	June 9	9	1	6
„ fucifera	. .	April 21	9	1	3
„ muscifera	. .	May 10	13	1	$6\frac{1}{4}$
Herminium Monorchis	April 26	June 9	46	0	10
Spiranthes autumnalis	. .	Sept. 2			
„ æstivalis	Sept. 10				
Listera ovata	March .	May 18			
„ cordata	March 20	May 29			
Epipactis palustris	April 21				
Cephalanthera grandiflora	. .	. .	13	2	0
„ ensifolia	April 20				
Cypripedium Calceolus	April 21				

The foregoing table was drawn up from time to time from Orchises cultivated in pots, chiefly in the years 1850 and 1851, the greatest care being taken to imitate the natural soils and habitats of the various species.

The discoveries made during that time were fourfold. First, that our British Orchises can be cultivated successfully, if sufficient care be given, so that they will attain a growth rarely, if ever, seen in their wild localities; secondly, that *O. militaris* and *O. macra* are distinct species; thirdly, that *O. arachnites* is a *hybrid;* and fourthly, that the *markings* on a separate mesh of the reticulated covering of the germ, or seed, are a tolerably sure diagnostic of each species.

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* Observe the great difference in time of first appearance. On *O. militaris* there are short hairs on the midvein of the leaves; the hairs drop before flowering; on *O. macra* there are none.

† The *same root* is spotted or not, in different years.

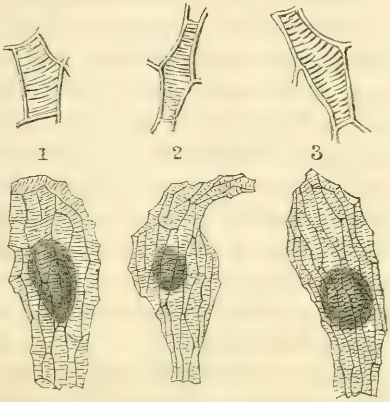
First, The above table is intended to show the *maximum* growth of each Orchis, the approximate times of their first appearance aboveground, and also their flowering. To attain the above growth, very great care must be given in the following particulars. The pots should be selected according to the number of Orchises to be planted in each, and according to the growth of the roots of the various species; they should be drained with broken bricks, etc., to one-third their height, superimposed by a layer of pure chalk in lumps. The soil should imitate, as nearly as possible, that in which each grows in a wild state, with a little living moss on the surface. Worms in the pots are certain destruction to the plants. Stand each pot in a pan, and always water from below (never over the plants), as circumstances may suggest, and according to the natural requirements of each, and let the watering be done in the cool of the evening. Rain will not hurt them, but is always beneficial. Place them during summer in a southern aspect, partially shaded by trees of thin foliage. In winter the pots should be plunged in ashes in a cold but light frame, open a little in front and back during night, and quite open during the day, unless the weather be very severe or snowy.

Secondly, It will be seen, on reference to the table, that in *O. militaris* and *O. macra* the difference in the time of their first appearance above ground is about two months and a half, and that on the midvein of the leaves of *O. militaris* there are short hairs which drop before flowering, and which are totally wanting in *O. macra.* (True *Orchis militaris* has never, as far as I am aware, been found in Kent, but *O. macra* has frequently.)

Thirdly, *Ophrys arachnites* is a hybrid between *O. apifera* and *O. fucifera.* Out of three fully developed capsules selected from each for their large size, those of *O. apifera* and *O. fucifera* had perfected nearly all their seeds, there being many hundreds in each; whilst in those of *O. arachnites,* which were equally plentiful, I could only detect *one* perfect seed, and that a very small one, as shown in the table. It is my belief, also, that where *O.*

arachnites is present, the other two are invariably to be found, and in bloom at the same time, *O. fucifera* being nearly out of flower and *O. apifera* just in perfection, and the pollen-masses on each still remaining fit for fertilization.

Fourthly, Under a power of the microscope of about two hundred diameters, a beautifully netted case, which covers each seed like the calyptra of some Mosses, presents itself. Each mesh of this reticulated covering is again beautifully and variously marked, and these *markings* are sufficiently distinct in each Orchis to point out the species almost unerringly. Those of *O. apifera*, *O. fucifera*, and *O. arachnites* are here figured,* in order to show, as a further proof, that the latter is a hybrid, the markings being an exact intermingling of the two first-named species.



N.B. I state unhesitatingly that there are not *two* British *Ophryses* bearing the names of *O. aranifera* and *O. fucifera*, or even such varieties; but which is the correct one, I am not sufficient botanist to determine, but I am inclined to adopt that of *O. fucifera*.

Chiselhurst, December 6, 1855.

On the Hieracia *of North Yorkshire and Teesdale. By* John G. Baker.

(*Continued from page* 104.)

In the preceding paper I have advocated the classification, in three subgeneric divisions, of our indigenous *Hieracia*, and have endeavoured to show how little real difference there is between the views of recent authors upon this important point. I will now proceed to enumerate in systematic order the species which we possess in this district, and attempt to indicate their range of characters and situations within the comparatively limited field to which these notes have reference.

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* Fig. 1 (lower figure), seed, or germ, of *O. apifera*. 2. Seed of *O. arachnites*. 3. Seed of *O. fucifera*. The globular form in the centre is the true seed.—The upper figures represent a single mesh of each respectively, with its markings.

Series 1. (Pilosella, *Fries.*)—Mode of propagation by stolons. Leaves mostly or wholly radical. Achenia small. Hairs of the pappus arranged in a single row.

1. *H. Pilosella,* Lin. Spec. Pl. 1125.—Stolons short and stout, or slender and elongated, procumbent or ascending, occasionally bearing flowers; very variable also in the length of its scapes and the quantity and quality of the vestiture of its leaves, stems, and involucres. In ericetal and pascual situations. The leaves are clothed on the under side with a close covering of dense white pubescence: in damper localities this is much thinner. Outer ligules usually banded with red on the outside, but sometimes uniform in colour.

Grassy banks and heathy places; sometimes covering by itself a considerable space. Universally distributed throughout the district, from the coast-line to the Arctic region.

Is not our British *H. dubium* most likely to be only an aberrant form of the common *Pilosella?* It is quoted doubtfully by Fries, under *H. stoloniflorum* of Waldstein and Kitaibel, but that species has its head-quarters in the north and east of Europe, and runs out southward and westward, reaching only a single station in Norway, and even there considered as doubtfully indigenous.

H. aurantiacum, Lin. Spec. Pl. 1126, is commonly cultivated in gardens, and easily becomes diffused abroad and naturalized. It has established itself, for instance, in considerable abundance in woods near Wilton Castle, in Cleveland, the seat of Sir John Lowther, where the specimens issued in my fasciculus were gathered by W. Mudd.

Series 2. (Aurella and Pulmonarea, *Fries.*)—Mode of propagation by rosettes. Stem-leaves none or few; radical leaves forming a basal tuft, which is nearly always present at the time of flowering. Achenia comparatively large. Rays of the pappus arranged in two obscure rows.

A plant has been reported from two localities in North Yorkshire, under the name of *H. villosum*. Judging from its geographical distribution, the true Linnean species of that name is not likely to grow anywhere in Britain, and it is most probable that in the present case some form of *H. vulgatum* has been mistaken for it.

2. *H. iricum*, Fries, Symb. 60.—*H. Lapeyrousii*, Angl., non Fr.—Stem one to three feet high, firm, rigid or flexuose, with one to four leaves, more or less densely clothed with long white hairs, corymbose or paniculate above. Root-leaves usually about four in number, with short or elongated, winged, shaggy petioles, glaucous green on both sides, occasionally tinged with purple, oval or oblong-lanceolate, narrowed gradually at both ends, with several acute teeth in the lower part, but entire above. Stem-leaves amplexicaul, resembling the root-leaves in shape, passing gradually upwards into bracts. Peduncles arcuate, mostly simple like the truncate involucres, more or less densely clothed with short black hairs and setæ and white stellate down. Heads large, averaging about four in number. Phyllaries imbricated, irregularly subobtuse, dark green in the middle, paler at the margin, blackish in the dried plant, glabrous above; outer somewhat lax. Ligules bright yellow, ciliated at the apex. Styles yellowish.

This species occurs in Upper Teesdale, on the Durham side of the river, on the rocks at the eastern extremity of Falcon Clints, near the station for *Polystichum Lonchitis*, and sparingly near Langdon bridge, and in two or three other places. On the Yorkshire bank, it is plentiful amongst the rocks on the edge of the Tees, about Wince bridge, and below the village of Holwick. The range of elevation in the district is scarcely more than from 300 to 400 yards. It grows also in two or three stations in Braemar, and amongst the mountains of Galway. There cannot be much doubt that it is permanently distinct from all the multiform varities of *cerinthoides*, from which it may be known by its more numerous stem-leaves and blunt phyllaries, with glabrous apices. It affords an excellent illustration of what Fries calls a "contiguous anthela," the leaves passing up gradually into bracts, and the bracts into phyllaries, without any sudden transition.

3. *H. cerinthoides*, Lin. Spec. Pl. 1129.—*H. Lawsoni*, Smith. —*H. cerinthoides*, *pilosum*, and *Anglicum*, Fries, Symb.—*H. pallidum*, Br. Fl. edit. 6.—Stem one to two feet high, straight

or flexuose, leafless or with one, or rarely with two leaves, more or less densely clothed with long, white, silky hairs, simple or corymbose above. Root-leaves from four to six in number, flaccid or firm, with short or elongated, shaggy petioles, glaucous green on both sides, occasionally tinged with purple, sometimes densely covered with white hairs beneath; outer oblong-obtuse; inner ovate-lanceolate, with a few acute teeth below. Stem-leaves resembling those of the root in shape, slightly amplexicaul or narrowed gradually to the base. Peduncles long, arcuate, mostly simple, like the ovate-based involucres, clothed with stellate down, long white and short black hairs and setæ. Heads seldom exceeding four in number. Phyllaries contiguous, adpressed, dark green, blackish when dried; outer acute; inner acuminate. Ligules bright yellow, ciliated at the apex. Styles yellowish.

On the Durham side of the Tees, on Falcon Clints, and rocks near the High Force and Wince bridge; on the Yorkshire bank, on the Scars bordering Mazebeck, and at the White Force, at the lower end of Cronkley Fell,—but only sparingly at each station. Range of elevation, 300–550 yards. This species has been much misunderstood by authors both at home and abroad, and though the name for a long time took its place amongst our "incognita," it is now ascertained that *H. Lawsoni* is in reality the same plant, and that it is a widely diffused example of the Highland type of distribution.

4. *H. pallidum*, Biv. Piant. inedit. p. 11; Fries, Symb. 94.—*H. Schmidtii*, Tausch.—Stem one to two feet high, rigid or flexuose, usually leafless or with a single leaf, rarely with from two to four leaves, slightly hairy, corymbose above. Root-leaves numerous, usually thin and flaccid, sometimes thicker and rigid, nearly or quite glabrous upon the upper surface, glaucous and more or less hairy beneath; outer oblong-obtuse; inner ovate-lanceolate, acute, entire or deeply toothed near the base. Stem-leaves, when present, lanceolate, slightly dentate. Peduncles erecto-patent, forked, covered, like the broad-based involucres, with black hairs and setæ, and sometimes with white stellate down. Heads of flowers of moderate size, averaging from four to eight in number. Phyllaries dark green and setose on the middle, paler and subglabrous at the margins, outer acute, inner acuminate or cuspidate. Ligules yellow. Styles pure yellow.

On the Durham side, all along Falcon Clints, but to a considerable extent in inaccessible situations, and appearing again on the rocks near the High Force. On the Yorkshire bank, in two or three places, amongst Cronkley Scars, and near Wince bridge, and probably in other stations in Upper Teesdale. Upon the basalt the leaves are thin and flaccid, forming a dense basal rosette, the inner phyllaries acuminate, the peduncles and involucres almost or entirely without white stellate down. This is the plant mentioned, 'Phytologist,' iv. 1051, under the names of *H. pallescens scapigerum.* In the form which grows upon the limestone on the eastern extremity of Falcon Clints, with *H. iricum* and *cerinthoides,* the leaves are fewer and thicker, the phyllaries broader and blunter, and the peduncles and involucres more or less thickly covered with white stellate down. The latter was at first supposed to be identical with *H. saxifragum,* Fries (*vide* Bab. Man. edit. 3; 'Phytologist,' *loc. cit.*), which, though not known to British botanists, is quoted in the 'Symbolæ' as an inhabitant of this country. A specimen of this variety in my collection, from shady places in the High Force Wood, has four stem-leaves, but this is quite unusual. An example of *H. Schmidtii,* from Bohemia, which I saw lately in Rehskiner's 'Plantæ Alpinæ,' agrees very well with the plant of Falcon Clints. Professor Walker Arnott (Br. Fl. edit. 7) localizes this much misunderstood plant in Teesdale only, but it grows also in many other parts of Britain, and is by no means entirely absent from the Highlands of Scotland. The late much lamented Dr. G. Johnston was perfectly correct in suggesting the identity of his *H. murorum,* var. β, (*vide* Terra Lindisfarnensis, p. 118,) with this species, as authenticated examples from the locality (Dunsdale, Cheviots), with which he furnished me, amply prove. The leaves of *H. pallidum,* especially of the *pallescens scapigerum* form, are mostly conspicuously ciliated at the margin, which character, taken in conjunction with its pure yellow styles, furnishes the best mark by which to distinguish it from *H. murorum,* with which it is far more likely to be confused than with any of the varieties of *cerinthoides.* Range of elevation, 300–500 yards.

(*To be continued.*)

Botanical Notes from East Suffolk. *By* T. W. Gissing.

Dear Sir,—I enclose a paper on the plants of East Suffolk that I gathered during the latter part of last July. I hope it may prove interesting, for Suffolk is a county of which little has been said *botanically* (excepting its good corn-crops) since the early part of this century. I wish my time had been greater, as I had a great desire to thoroughly explore, being my native county.

I remain, faithfully yours,
Salisbury, October 31*st*, 1855. T. W. Gissing.

P.S. I am glad to find the present 'Phytologist' is getting into the hands of many who never took the first series.

Numerous causes combine to render it impossible for a *tourist* to give an entire list of the plants of any district he may visit; therefore I do not assume that the following plants are *all* that are to be found in East Suffolk; they are the rarer ones that attracted my attention during a short stay at the end of July and the beginning of last August.

Of course I desired to gather as many of the rarities as possible; I therefore searched well for *Lastrea cristata* at Westleton, but without success. I think this failure is easily accounted for, for since the time Mr. Davy reported the plant from that neighbourhood nearly all the spots likely to produce it have been in some way transformed—chiefly drained and converted into arable land. There are now but *very few* "Alder holts" in the vicinity of Westleton, although many persons who have known the place for only *twenty* years informed me that at that distance of time clumps of Alders were very common; one large spot in particular—boggy and covered with those trees—was known as the "Alder cars."

In Hooker and Arnott's Flora, Eye is given as a habitat for *Holosteum umbellatum:* of this I likewise failed to find any trace. It must likewise be remembered that a great number of the rare plants indigenous to Suffolk are found only in the northern or western parts of the county; and I think it highly probable that the *Veronica verna* and *V. triphyllos,* said to grow near Thetford, may be in Norfolk. *Orchis hircina,* reported in the 'Phytologist' a few years since as growing at Great Glemham, I searched vainly for.

Clematis Vitalba. Middleton; but not common.

Thalictrum flavum. Very sparingly in a coppice at Badingham. (Miss G.)

Anemone nemorosa. Frequent.

Ranunculus circinatus. Still ditches.

Ranunculus hirsutus. Salt-marshes, Aldborough.

Ranunculus arvensis. Common.

Ranunculus sceleratus. Common.

Nymphæa alba. In pools about Aldborough.

Nuphar lutea. Frequent.

Papaver Argemone. Sparingly.

Papaver dubium. Frequent.

Chelidonium majus. Occasionally.

Glaucium luteum. Dunwich, etc., on the coast.

Fumaria capreolata. Not common.

Cakile maritima. Near Landguard Fort.

Coronopus Ruellii. Frequent.

Thlaspi arvense. Only near the sea.

Teesdalia nudicaulis. Heaths near the sea.

Cochlearia danica. Dunwich, etc.

Turritis glabra. Sweffling, etc.; but sparingly.

Barbarea vulgaris.
Nasturtium terrestre. } Common.
Nasturtium sylvestre.

Sisymbrium Sophia. Frequent in waste places near the sea.

Erysimum cheiranthoides. Common in cornfields and by roadsides.

Cheiranthus Cheiri. Framlingham Castle.

Sinapis nigra. Frequent.

Diplotaxis tenuifolia. Dunwich.

Helianthemum vulgare. Not common.

Viola hirta. Frequent.

Viola odorata, var. *β, alba.* Rendham.

Silene inflata. Frequent.

Silene inflata, var. *β,* stem and leaves downy. Frequent.

Silene maritima. Dunwich and along the coast.

Silene anglica. Dennington.

Lychnis vespertina, flor. rub. Badingham.

Agrostemma Githago. Fields.

Sagina apetala. Damp walls.

Sagina nodosa. Sparingly.

Honckenya peploides. Sea-coast. Very fine.
Raphanus Raphanistrum. Fields.
Spergularia marina. }
Spergularia rubra. } Near the sea.
Cerastium aquaticum. Badingham.
Malva sylvestris. }
Malva rotundifolia. } Common.
Malva moschata. Rare. Martlesham.
Althæa officinalis. Near the "Sluice," between Dunwich and Sizewell Gap.
Hypericum humifusum. }
Hypericum pulchrum. }
Hypericum hirsutum. }
Hypericum quandrangulum. } Frequent.
Geranium pyrenaicum. Abundant by roadsides about Great Glenham.
Geranium pusillum and var. *alb.* }
Geranium columbinum. } Not common.
Geranium rotundifolium. Near Dunwich.
Euonymus europæus. Rather frequent.
Genista tinctoria. Badingham, etc.
Genista anglica. Heaths.
Ononis arvensis. }
Ononis antiquorum. } Common.
Medicago falcata. Dunwich old churchyard, where it has been more than half a century.
Medicago maculata. Ipswich and Aldborough.
Medicago minima. Near Landguard Fort.
Melilotus officinalis. Frequent.
Trifolium ochroleucum. The "Grove," Badingham.
Trifolium medium. }
Trifolium arvense. } Very common.
Trifolium scabrum. Near the sea about Felixstow.
Trifolium fragiferum. }
Trifolium minus. }
Lotus major. } Frequent.
Ornithopus perpusillus. Heaths.
Onobrychis sativa. Near the sea.
Vicia Cracca. }
Vicia tetrasperma. } Common.

Vicia hirsuta. Common.
Lathyrus maritimus. Aldborough.
Orobus tenuifolius. Not common.
Prunus Avium. Yoxford.
Potentilla argentea. Westleton, near Rackway bridge.
Fragaria vesca. This plant presents a most striking appearance in the woods, the ground being literally *red* with the ripe fruit.
Rubus cæsius. Common.
Rosa spinosissima. Near the sea.
Rosa micrantha. }
Rosa rubiginosa. } Badingham.
Rosa arvensis. }
Sanguisorba officinalis. }
Poterium Sanguisorba. } Frequent.
Pyrus Malus. }
Epilobium hirsutum. }
Epilobium parviflorum. } Common.
Epilobium roseum. }
Hippuris vulgaris. Ditches at Ipswich.
Lythrum Salicaria. Frequent.
Tamarix anglica. Near Landguard Fort. Not worthy of even being called naturalized, as it grows only on the borders of old gardens.
Bryonia dioica. Frequent.
Ribes rubrum. Wood at Badingham.
Sedum anglicum. Near the sea, growing amidst short turf-grass.
Sedum Telephium. Occasionally towards the sea.
Adoxa Moschatellina. Badingham.
Cornus sanguinea. Frequent.
Eryngium maritimum. Dunwich, etc.; but nowhere plentiful.
Smyrnium Olusatrum. Theberton, and frequent near the sea.
Apium graveolens. Badingham, and in salt-marshes.
Ægopodium Podagraria. Occasionally.
Sium angustifolium. }
Œnanthe fistulosa. }
Œnanthe crocata. } Frequent.
Œnanthe Phellandrium. }
Æthusa Cynapium. }
Fœniculum vulgare. Frequent and very fine near the sea, some plants being *eight* feet high.

Silaus pratensis.
Pastinaca sativa. } Common.
Torilis infesta.
Torilis nodosa. } Frequent.
Scandix Pecten.
Viscum album. "Monk Soham."
Viburnum Opulus. Dennington.
Galium erectum (?). "The Grove," Badingham.
Galium tricorne. Badingham.
Dipsacus pilosus. Badingham, etc.
Lactuca muralis. Frequent.

New or Scarce IRISH MOSSES *found chiefly in the County of* Cork.

By ISAAC CARROLL.

Species not hitherto, as far as I am aware, recorded as Irish are marked with an asterisk.

1. *Sphagnum contortum*, Schultz, *β, subsecundum.* Bogs; Kinsale and in county Waterford, probably frequent.
2. *Phascum patens,* Hedw. Marshy ground near Ballincolly Castle. Rare.
3. *Phascum nitidum,* Hedw. With the preceding.
4. *Gymnostomum tenue,* Bryol. Br.? "♂ plant. Probably a short-leaved form of the above, but without fruit it would be rash to pronounce decidedly," *Wils. in litt.* Abundant on walls by the Lower Glanmire road, resembling green plush.
5. **Dicranum Blyttii,* Br. Eur. Summit of Galtymore, Tipperary; very scarce.
6. *Campylopus densus,* Schleich., var. *fragilis.* Frequent about Cork. *Fr.* amongst rocks near Blackpool in March.
7. *Pottia Wilsoni,* Br. et Sch. Little Island. Rare.
8. **Pottia crinita,* Wils. In rocky places around Cork Harbour. *Fr.* in March.
9. *Desmatodon nervosus,* Br. et Sch. Youghal, *E. Sargint, Esq.* Cork Harbour.
10. *Didymodon luridus,* Hornsch. On walls and banks near Cork very plentiful; first observed by W. Wilson, Esq.

11. *Trichostomum tophaceum,* Brid. (*T. trifarium,* Sm.) Near Cork. Rare.
12. *Trichostomum tortile,* Schrad. (*Didymodon pusillus,* Br. Fl.) Sand-pit, Dodge's Glen, *D. Murray!*
13. **Trichostomum flexicaule,* Br. et Sch. On Carrantuel, Kerry.
14. *Tortula vinealis,* Brid., *β, flaccida.* Common. *Fr.* rare near Cork and Fermoy.
15. *Tortula revoluta,* Schwägr. Old walls. Rare.
16. **Tortula Hornschuchiana,* Schultz. Limestone quarry. Very rare.
17. **Tortula lævipila,* Brid. On trees; probably frequent.
18. **Grimmia orbicularis,* Br. et Sch. (*Gümbelia orbicularis,* C. Müll.) Walls near Cork in several places. A most distinct and pretty species.
19. *Grimmia spiralis,* Hook. et Tayl. Brandon Mountain, Kerry, *D. Moore, Esq.!*
20. *Grimmia torta,* Hornsch. On wet rocks, Carrantuel, Kerry.
21. *Orthotrichum pulchellum,* Sm. About Cork and Fermoy. Scarce. Balliton, Kildare.
22. *Orthotrichum Bruchii,* Hornsch. On rocks and stones. Too near *O. crispum*?
23. *Orthotrichum Drummondii,* Hook. et Grev. Gurtane Wood, County Waterford, *Miss S. Grubb!*
24. *Zygodon Mougeotii,* Br. et Sch. Ballinhassig Glen, etc., on dripping rocks. Connemara, *D. Moore, Esq.*
25. *Zygodon viridissimus,* Brid. Abundant on trees; less frequent on rocks and walls. *Fr.* not rare.
26. *Zygodon conoideus,* Hook. et Tayl. On trees. Rare.
27. *Diphyscium foliosum,* W. et M. On Ma'am, Connemara, *D. Moore, Esq.!* Mountain over Leenane, *J. C.*
28. *Leptobryum pyriforme,* Wils. "Dunscombe's Wood and under Blarney Castle, with *fruit,*" *Wils. in litt.* I have seen the barren plant at Blarney.
29. **Bryum uliginosum,* Br. et Sch. Bog near Cahir, county Tipperary, *Miss S. Grubb!*
30. **Bryum cernuum,* Br. et Sch. Walls near Cork and Fermoy. Probably common.
31. **Bryum inclinatum,* Br. et Sch. Common.
32. **Bryum intermedium,* Br. et Sch. Near Cork.
33. *Bryum bimum,* Sch. Common.

34. **Bryum pseudo-triquetrum,* Br. Brit. Near Fermoy, *T. Chandler.*
35. **Bryum Donianum,* Grev. "♀ plant," *Wils.* By the river Lee, above the County Jail. Barren.
36. *Bryum sanguineum,* Ludw. *B. erythrocarpum,* Sch. Near Fermoy; probably frequent.
37. *Bryum atro-purpureum,* W. et M. Walls, rocks, and banks. Very common.
38. **Physcomitrium fasciculare,* Br. et Sch. Damp fields near Cork and Fermoy.
39. **Leskea subrufa,* Wils. On Ben Bulben, Sligo, *D. Moore, Esq.!*
40. *Climacium dendroides,* W. et M. *Fr.* at Ballypheham Bog in January.
41. *Hypnum albicans,* Neck. Sandhills near Youghal. Fertile.
42. **Hypnum salebrosum,* Hoffm. Near Cork and Fermoy. *Fr.* in December.—Whether *H. salebrosum* of Fl. Hib. belongs to this species or to *H. glareosum,* Br., I have no means of determining. Our plant occurs chiefly in limestone quarries.
43. **Hypnum lutescens,* Hud. Limestone quarries; rarely on trees. *Fr.* at Blarney, *Dr. Power!*
44. *"*Hypnum rivulare,* Br.," *Mitten in litt.* Dodge's Glen; perhaps not rare.
45. *Hypnum crassinervium,* Tayl. Abundant about Cork and Fermoy; chiefly but not exclusively confined to limestone. *Fr.* rare at Moonpark and by the Mardyke.
46. *Hypnum piliferum,* Sch. *Fr.* at Blarney and Fermoy.
47. *Hypnum Swartzii,* Turn. Common.
48. *Hypnum pumilum,* Wils. "Douglas, near Cork; fertile," *Wils.* Great Island. Barren.
49. **Hypnum speciosum,* Brid. Ballypheham Bog. Rare. *Fr.* in December.
50. **Hypnum circinatum,* Brid. Near Fermoy (probably on limestone), *T. Chandler!*
51. *Hypnum fluviatile,* Sw. "True plant," *Wils.* Frequent in streams about Cork and Fermoy, fruiting in May.
52. *Hypnum irriguum,* Wils. Glenbower Wood. Barren.
53. *Hypnum Schreberi,* Willd. *Fr.* near Cork, *D. Murray!*

*53. **Hypnum chrysophyllum,* Bryol. Br. Frequent, especially in limestone quarries. *Fr.* rare.

**53. *Hypnum pratense,* Koch. Balliton, Kildare. Near Cork. *D. Murray, Esq.!* "♂ plant," *Wils.*

Hookeria lætevirens, H. et T., and *Bryum Tozeri,* Grev., are still to be found, but very sparingly, in the stations assigned to them in Dr. Power's 'Flora of Cork.'

54. *Neckera crispa,* Hedw. *Fr.* rare at Blarney, *D. Murray, Esq.!* Fermoy, *T. Chandler!*

55. *Neckera pumila,* Hedw. *Fr.* rare at Blarney, *D. Murray, Esq.!* Fermoy, *T. Chandler!*

Cork, December 9th, 1855.

Reviews.

The Fern Allies: a Supplement to the Ferns of Great Britain. Illustrated by JOHN E. SOWERBY, proprietor of Sowerby's 'English Botany.' *The Descriptions, Synonyms, etc., by* CHARLES JOHNSON, Esq., Botanical Lecturer at Guy's Hospital. Part I., price 3*s.* full coloured.

Dr. Johnson said of Dr. Goldsmith, "Nihil tetigit quod non ornavit," or, as it may be freely rendered, "he was an eminently successful artist," and an equal meed of praise is due to Mr. Sowerby, to his progenitors, and to the other branches of his family who have devoted their talents and energies to the illustration of many branches of natural history.

The first part of the illustration of the 'Fern Allies,' as they are called, which is just published, is fully equal to the former Works of this accomplished engraver and draughtsman. The four plates of the genus *Equisetum* now published, viz. *E. arvense, E. umbrosum, E. Telmateia,* and *E. sylvaticum,* fully merit the eulogium of faithful delineation, scrupulous accuracy of detail, and of pictorial elegance and taste.

The letterpress descriptions consist of brief condensations of the characteristic marks of each species. The distribution or range, the habitats, and the localities of rare species, together with their history, propagation, cultivation, etc., are given in detail. The pages of the 'Phytologist,' ever since its publication, bear ample testimony to our sense of the high value of these meritorious performances, which are unquestionably the standard works illustrative of the flora of Great Britain. We commend this new part to the attention of all who are interested in Nature, or in the representation of her manifold aspects, and we have the assurance that they will be as much gratified with its perusal and inspection as we have been.

We hope the readers of our Journal will tolerate a page or so on the general subject of the 'Fern Allies,' a subject which may be new to many of them, as the term itself is but of recent origin. There does not appear to be any incongruity or unfitness in the word itself. It is surely preferable to *Pteridioides,* both in sound and sense; it is as fair in its form, and it is more congenial to the usages of our language than its *Greekified* rival. We speak habitually of allied genera and allied species, and there is no inconsistency in the phraseology "allied orders." The orders usually included under this term, *Fern Allies,* are the Horse-tail plants (*Equiseta,* the plural of *Equisetum*), the Club Mosses (*Lycopodia,* the plural of *Lycopodium*), including the Quillwort (*Isoetes*), the Pillwort (*Pilularia*), and recently the Charas (*Characeæ*), a genus or order which, in the systems of our elder botanists, occupied a higher rank in the vegetable kingdom than that to which they have only very recently been raised; in the 'English Flora' they are placed among the monandrous plants, subsequently they were set "cheek by jowl" with the *Algæ;* they are now, for the sake of convenience we suppose, associated with the "Filical Alliance," as the learned Professor of University College terms this group of orders. We admit that there is no striking resemblance of external form, nor similarity of organic structure, among the individuals composing this group called Fern Allies, but they agree in belonging to the vegetable kingdom, and coincide in having a less complex vegetable structure, and in bearing spores (reproductive bodies not organized like the seeds of the more highly developed orders of plants). The term Fern Allies does not signify that there is a family likeness between them, such as we find in species, genera, and in allied orders of *cotyledonary* plants: in these there is "facies non omnibus una, nec diversa, tamen quales decet esse sorores;" there is a *distinction,* but not a *difference.* In the Fern Allies there is both a difference as well as a distinction, and hence the inapplicability of the term *Pteridioides.* The order *Equisetaceæ* comprehends only one genus, viz. *Equisetum,* and hence the character of the order and of the genus is the same. Of this genus or order there are eight or nine British species, and possibly about an equal number of exotic or foreign species: they are all distinguished by their hollow-jointed, round, angular stems, with sharply toothed sheaths, often with slender spreading branches, which spring from a joint, and encircle the stem by their bases. The fruit is in terminal, ovate or cylindrical spikes, either produced on the branched stem or on a separate or distinct, unbranched stem, which however arises from the same root as the barren stem does. In the position of their branches, and in their general outline or port, the species of this order have a slight resemblance to a Pine or Fir. They are all perennial or of long duration, and grow mostly in cool, shaded, moist places. The Field Horse-tail grows in fields, and is accounted an agricultural weed, and one not easily extirpated, its roots spreading widely and penetrating deeply into the soil. The Club Mosses, *Lycopodiaceæ,* consist of only one genus, like the last-mentioned, but they differ widely from the Horse-tails in habit, general aspect, structure, and localities (places where they grow). They have a greater resemblance to Mosses (*Musci*) than to Ferns. They are leafy plants, with branched, trailing, wiry stems (few are erect); their substance is dry and rigid; and their fructification (matter by which they are reproduced) is produced in terminal, dense, cylindrical spikes. They are all perennial, and grow mostly on open mountainous heaths, on exposed moors, and in similar places. Several foreign species grow luxuriantly under the shelter and drip of trees. They are all objects of great beauty and interest, and have in recent years been rather extensively cultivated, especially under glass, with Ferns and other suitable plants. The aquatic plant Quillwort has only very recently been associated with the *Club Mosses,* to which indeed it has but a very feeble affinity; it grows under water in alpine lakes, and is, like the others, a perennial. *Pilularia* (Pillwort) belongs to the order *Marsileaceæ,* and is the only British example of this genus and order. The stems are thread-like, quite prostrate, with tufts of greenish, narrow, pointed, erect leaves above, and several small, slender roots below. The fruit is in round, blackish bodies, about as large as peppercorns, solitary, and opposite to the rootlets of the creeping stems. They grow in watery places, and are rather rare. The Charas (*Characeæ*) are all aquatics and annuals. They are slender, fragile, branched, and leafless plants, with their fructification seated in the axils of the branches and stem. They are distinguished by an unpleasant smell. There are two genera of this Order, *Chara* and *Nitella.* These plants bear no resemblance whatever to the other plants of the Fern Allies; they disagree with all their allies in habit, place of growth, and duration. But they are plants, and so are Ferns. "There is a river in Wales, and there is a river in Macedonia;" *ergo,* Wales is like Macedonia. The authors of the "Fern Allies" have the good sense not to apply the term *Pteridioides* to this heterogeneous group of plants. The *Charas,* if they are to have a place at all in British descriptive botanical works, must be placed somewhere: and their position after the genera usually classed among the Fern Allies is, we believe, as appropriate as any other, *pace Algologists.* If these microscopists claim the *Charas* as belonging to their especial province, we will not dispute the point. We have no objection to Mr. Sowerby's proposed arrangement, nor to any other which may be agreed upon by those who are most competent to determine, in any systematic arrangement, the place which these plants should occupy. We only remark that we have seen them at the very threshold of our classifications. We have seen books from which they were totally discarded. We have seen them again entered at the very fag-end of the vegetable kingdom. We hope they will at last be suffered to stand in some definite part of our botanical arrangements.

The Flowering Plants and Ferns of Great Britain: an Attempt to classify them according to their Geognostic Relations. A Paper read before the British Association for the Advancement of Science, at the Twenty-fifth Annual Meeting, Glasgow, 1855; with Additions. *By* JOHN GILBERT BAKER. London: Cash, Bishopsgate-street Without.

One of the chief and distinguishing characteristics of the present age is the progress of science,—the advancement in the knowledge of objects, and in the determination of the various relations they bear to other different objects. The tract before us is one of the many evidences of this spirit of research and successful investigation. It is not a reproduction of the old and effete scientific platitudes of bygone times, but a genuine, original production, on a subject hitherto (among us Britishers at least) untouched. It is not here asserted that the relations between plants and the soils on which they grow have hitherto been neglected: almost every writer on descriptive botany has noticed this branch of the subject. But it may be fairly asserted that this department, viz. the geognostic relations of plants, was never heretofore treated systematically and scientifically. That every botanist and geologist will concur with Mr. Baker in his views, or admit his classifications unmodified, is not to be expected. The present essay is modestly entitled, "An Attempt to Classify the British Plants," etc. It is a laudable attempt, and its author is well entitled to the hearty commendation of all who are interested in the promotion of science.

The title, which is quoted above, fully explains the nature of the paper,—the classification of plants according to their geognostic relations, or, in other terms, according to the nature, or rather chemical constituents, of the soils on which they grow. It has long been observed and recorded that certain plants evince a preference for certain soils. Some of the Orchids, for example, are restricted, in this country at least, to chalk (cretaceous soils), some are restricted to chalk and limestone (cretaceous and calcareous soils), while some of the same Order are generally or universally distributed, manifesting no very decided partiality for any particular kind of soil; hence the classification adopted by Mr. Baker, viz., first, the restricted species; and second, the unrestricted species. The first class comprehends the cretaceous and calcareous plants (species growing on these soils), the argillaceous, arenaceous, etc.; the second class, by far the most numerous in species and number of individuals, evinces no very decided predilection for particular soils, but are found in almost all soils and under a wide climatic range. But our object is not to give our readers an analysis or a *résumé* of the author's valuable contribution to the knowledge of British plants. We hope they will procure the essay, and read it and compare it with their own experience, and employ it as a stimulus to their subsequent observations. Our intention is merely to hint to our friends, and contributors especially, that knowledge is many-sided, and that there are several particulars worth knowing about plants, over and above the interesting fact, that certain comparatively rare species were collected by N. or M., which other facts are interesting to many, and we hope the class to which they are so is daily increasing. We do most cordially tender to Mr. Baker our mead of approbation for his successful labours in this hitherto untrodden field; and we hope he will not be deterred from prosecuting his researches in this quarter, even if he get but feeble aid and faint praise for his exertions.

We shall be very happy to devote some space in our Journal for recording any progress that may from time to time be made in this branch of the science; and our intention is to return to the subject at some future period, and to notice occasionally certain facts corroborative, or restrictive, or corrective of those embodied in the essay before us.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Continental Botany.

From the 'Botanische Zeitung,' September, 1855.—"In the court of the ancient abbey of the Cistercians, at Goldenkron, in Bohemia, there is a very aged tree, a venerable Lime. In spring, when the first impulse is given to vegetation, and the earlier buds expand, the first leaf of each series is never perfectly unfolded, but always remains with its margins attached to each other, contiguous to the midrib and leaf-stalk. The popular saying is, that 'this tree bears *Capuzen*' (monks' cowls or hoods), and the credulous believe that these hoods have grown on the tree since Ziska, at the destruction of the monastery, in 1420, caused the monks to be hung thereon,—to remind posterity of the atrocious act then committed." Has any of our readers noticed a similar occurrence in the leafing of our Lime-trees?—In the same number there is a review of a Swedish botanical annual, viz. "Nya Botaniska Notiser, för är 1853, utgifne af K. Fr. Thedenius." Stockholm, 1853. (Botanical Notices for 1853.)

Caricum Scandinaviæ Conspectus, commentariis illustratus, auctore P. J. Beurling.—From this enumeration it appears that the Scandinavian species of *Carex* amount to 112. A large number; only it should be borne in mind that Scandinavia, including Denmark, Sweden, Norway, and part of Lapland, extends from Hamburg to Hamerfest, or from the 54th to the 72nd degree of north latitude, and from the Baltic on the east to the Northern and Atlantic Oceans on the west, an extent of about 30° of longitude, and enjoys a great diversity of climate, and has a great range of elevation. By the same author there is a conspectus of the *Cyperaceæ* of the same tract, also of the Scandinavian *Luzulæ*, of the genus *Thalictrum*, of the genus *Potamogeton*. Of this last-named genus the Scandinavian species are 24. The following British species grow near Stockholm, 60° north latitude, viz. *Scabiosa Columbaria*, *Hutchinsia petræa*, *Geranium columbinum* and *G. lucidum*, *Epilobium tetragonum*, *Sorbus hybrida*, Lin., *Lathyrus maritimus*, *Taxus baccata*, *Allium ursinum*, *Cephalanthera rubra*, *Asplenium Ruta-muraria*, etc.

In this same Swedish annual there is a notice of a *Conspectus Onagrearum*, by P. J. Beurling.

In the same we also find the following extraordinary relation of sight restored by the application of *Geranium robertianum:* an account of a blind man, declared incurable by his physicians, whose sight was restored after an application of this herb; by A. J. Barth; 2nd edition (Cassel. Th. Fischer, 1855).

'Botanische Zeitung' for October 12, 1855.—In this number there is an abstract of Meyer's 'History of Botany,' vol. ii., or 'Botany in the time of Dioscorides and Pliny.' Why does the Greek rank before the Latin? Because he was a Greek? or because he was prior in time? A doubtful point. In this volume the history of the science is brought down through the decrepitude and downfall of the Roman Empire to the time of Charlemagne. Hopeful men are the German physicists, including botanists! Who in this country would risk a history of botany extending probably to ten or fifteen volumes? Is there any enterprising publisher who will undertake to give to English botanists a translation of De Candolle's 'Botanical Geography'? We have been told that no London publisher would risk the outlay. We regret this. The German publishers create a demand by the plentiful supplies; our publishers of scientific works do not anticipate the demand, much less create it.

The 'Botanische Zeitung' for October 19, 1855, contains a very friendly notice of the 'Phytologist,' and full credit is given to the principles on which it is to be conducted, followed by an earnest appeal to the lovers of scientific truth to give it their support. We are obliged to the editor or editors of the 'Botanische Zeitung,' for the encouragement they afford us, and we beg to assure them that though our Journal be chiefly devoted to the botany of our fatherland, yet that we consider Germany as the fatherland of our ancestors; and as there is a community or identity existing between the Anglo-Saxon and Germanic races, so there is the same or a similar identity between the plants of the two countries. The plants common to England are common to Germany. Hence we have an interest in the vegetation of Germany, as we feel an interest in the prosperity and progress of her scientific sons, to whom we acknowledge ourselves especially indebted for many enlarged and profound views of other sciences as well as of botany.

In the 'Botanische Zeitung' for October 26, there is a review of F. Rochleder's 'Phyto-Chemistry' (the chemistry of vegetation or vegetable chemistry). We regret that we cannot give an analysis of this very interesting work. We think that this science is only in its infancy among us; and our Journal is not adapted for the discussion of these new subjects. We only wish to point out to those who take an interest in the chemistry of organized bodies, that they will find at least something new in this work. It is published at Leipsic, by Engelmann.

November 2.—In this number of the 'Botanische Zeitung' there is a paper by D. F. L. von Schlechtendal, on "Abnormal Catkins of Willows." "In the second half of the month of August" (this year, we presume), "in the neighbourhood of Halle, leaves, stipules, and catkins, fertile catkins, were observed on *Salix fragilis*, on shoots at least two yards high. The leaves had the common form which they assume at this period, and all were provided with stipules. The catkins presented nothing very remarkable in their appearance, except that the scales were rather laxer and paler below than when they appear at the usual time." Has any of our readers ever observed this phenomenon?—The same gentleman (nobleman we should say) observed and communicated an account of an abnormal form of the fruit of the common Maple, *Acer Pseudoplatanus*. Some of the fruit observed had four corners and four wings, and these four wings were not in the same plane, but two of them at right angles to the usual pair. The same cluster yielded normal as well as abnormal forms; the abnormal-formed fruits were usually abortive.

Note on the forthcoming List of Common Plants, or generally distributed Species (*see* '*Phytologist*,' *p.* 202).—We are indebted to several well-wishing correspondents for hints and suggestions calculated to make this list available for the promotion of the knowledge of the statistics and distribution of the British species. The substance of what we have received is as follows:—1st, We are advised to confine our attention to the list of universally distributed species in the first instance, postponing the lists of eastern and western species till this is completed. This advice will be strictly followed. 2nd, We have been advised to enter in this list all the species of the British type of distribution, and all whose provincial area is eighteen, or in some cases seventeen. As the comital range is very often more restricted in proportion than the provincial area, it will be impossible on our plan strictly to adhere to this. Several species have a very wide range, and are nevertheless found in comparatively few localities and seldom in great abundance anywhere: these will *not* be included in the list of assumed generally distributed species. 3rd, We are advised to include in our list of common things, many species common in England, but very scarce or absent in Scotland. We are disposed to adopt this suggestion, because it will give the means of ascertaining how far north some species extend, the northern limits of which are not very precisely known. Further hints will be thankfully received, especially such as are likely to make this list as useful as we wish it to be.

The following extract from a Letter, dated July the 17th, 1855, will, we are sure, be interesting to some of our readers. The writer, who is superintendent of the Botanic Garden, Adelaide, South Australia, is an old friend of ours, and the author of the very first Handbook of British Ferns —'Francis's Ferns':—

"I have a large garden of my own, and grow, in the open air, as *standards*, thirty-two sorts of grapes, peaches, apricots,—a hundred dozen on a tree; plums abundant; apples, pears, cherries, quince, pomegranates, oranges, and their tribe; bananas, loquats, guavas, but no gooseberries, currants, raspberries, or strawberries: these are grown in a few places up the hills. Strawberries sell in the season at 1*s.* the wineglassfull; cherries, 3*s.* per lb.; plums, 9*d.* per quart; stone-fruit, 2*d.* or 1*d.* each; the finest Muscat or Frontignac, or black Hamburg grapes, 3*d.* per lb.;

inferior, 2*d.*; at a less price than this they pay for wine, of which much is made. Vegetables an extremely dry summer has made scarce; potatoes are 5*d.* per lb.; horseradish scarcely known; cabbages small, and broad beans and peas scanty at all times; melons and water-melons delicious; cucumbers not good; ornamental shrubs and plants, our stock is very small, and of forest-trees less: indeed in a young colony people think more of necessities than of ornament. I have sent, during the present year, £60 to various nurserymen and seedsmen in England, and all that has arrived safely is about thirty common trees and a few bulbs; and seeds from England will rarely grow. The natural scenery of this country is very beautiful, and the soil most prolific to all plants not killed by the summer's drought, which is very great. Last year we had no rain from August to the end of March; the whole face of nature was dried up, and all crops a failure. Thus we are now at famine prices: bread, 1*s.* 10*d.* the 4 lb. loaf; butter, 3*s.* 3*d.* per lb.; cheese, 3*s.* per lb.; bacon, 2*s.*; yet strange to say, I shall sup tonight upon English salmon with English lobster-sauce, and wash it down with Perkins' porter,—positively cheaper than butcher's meat and colonial beer: such is the effect of a glutted market. I have bought sauces cheaper than the cost of the bottles that contained them. I have bought the same quality and size of shoe for 3*s.* and for 25*s.*; have had English ham at 1*d.* per lb.; yet I have not tasted veal for six years, nor milk for six months. Do you visit in the country?—cold tea, without milk, a damper or dough-cake, and perhaps mutton, is the extent of hospitality among the middle classes; but observe, that perhaps they live twenty miles from a shop or a public-house. The great drawback to this country is want of coal and want of water: the latter is abundant beneath the surface, but mostly brackish; pleasant rather than otherwise when you are used to it, but not fit for washing, etc. As to botany, almost all the Grasses are annual, thus for half the year all is barren. Of trees there is little variety. The eternal Gum-tree, all of the species of which look exactly alike, is everywhere: a mighty monarch of the Blue Gum is within a few yards of me; it is 187 feet high; then there is the funny-looking Grass-tree (*Xanthorrhœa arborea*, etc.) and the curious Shea Oak (*Casuarina*), and the very beautiful native Cherry that has the stone outside, *Exocarpus cupressiformis.* The native Pine too is beautiful (*Callitris australis*), and the Honeysuckle (*Banksia integrifolia*). The ugliest tree I ever saw, the *Epacris*, covers all the hills, mixed with numerous *Compositæ.* The papilionaceous plants are beautiful."

Campanula rotundifolia: roadsides, under Giggleswick Scars; common.—*C. latifolia:* not uncommon under stone walls, etc., about Settle; as on Ribbleside, at Cammock, Mill Island; Cammock Lane, near Cotteral Hall, etc. See 'Phytologist,' p. 174.

Does *Actinocarpus Damasonium* still grow on Clapham Heath, in Surrey, where it was found by Lawson nearly two hundred years ago?

Gentiana Pneumonanthe, near Clapham, Yorkshire (Lawson): has this plant been recently found in the Craven district?

Rheum nobile.—From Dr. Hooker's 'Himalayan Plants.' This grand plant, which grows at an elevation of 14,000 feet, would probably thrive in England. The Doctor does not describe its economical qualities, if it have any, but it would be ornamental at certain periods of its growth.

Mr. Editor,—Pray what is the derivation of *Carpinus*, Hornbeam?
CARPENTARIUS.

A Pomologist asks for the origin and meaning of *Mespilus*, Medlar.

We are requested to tell a querist the origin of *Epipactis*.—ED.

Mr. Editor,—Will you inform a *tyro* what you mean by *species?* Some authors employ this term when they mean a group of individuals, and sometimes it is used in the sense of a single individual. The terms *specific types*, *specific centres*, *typical species*, *identical species*, *representative species*, and such-like, are all more or less involved in obscurity, and will remain obscure to the uninitiated till the exact import of the term *species* is determined. TYRO.

[Will any of our learned correspondents condescend to enlighten the understanding of this juvenile?]

What is the origin of the specific name of *Heracleum Sphondylium?*

Mr. Editor,—Will you please inform the readers of your very agreeable Journal what plant it was which the ancients called *Lotus*, or *Lotos*, of which it was fabled that they who ate of its fruit forgot their own native land? Perhaps you will give us some account of it, and doubtless will thereby gratify other readers of the 'Phytologist' as well as H. B.

Communications have been received from

W. L. Notcutt; Rev. Hugh A. Stowell (two communications); Geo. Jordan; John Windsor, F.L.S.; H. B., Cranbrook; Rev. W. T. Bree; Rev. Robt. C. Douglas; W. Cheshire; B.; S. P.; J. G. Baker (two communications); G. C.; Fred. Currey, M.A.; Geo. B. Wollaston; W. P.; John Lloyd; William New, Royal Botanic Gardens, Kew.

BOOKS RECEIVED FOR REVIEW.

Stockhardt's Chemical Field Lectures, by Henfrey.
Pliny's Natural History, by Bostock and Riley. Vol. IV.
Baker's Plantæ Criticæ Brit. exsiccatæ, 1–30.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

ERRATA.

In the number for January, 1856.—First, Dr. Windsor's correction of *Campanula rotundifolia*, a mistranscription for *C. latifolia*, should have appeared, and the query by "Vigil" should have been withdrawn. Second, page 217, line 12 from bottom, *for* ancellam *read* ancillam; page 219, line 5, for *Asplenimum* read *Asplenium.*

In the number for December, 1855.—Page 174, for *Campanula rotundifolia* read *C. latifolia.* Page 178, line 19, *for* Thomas Williselt *read* Thomas Willisel.

Some Observations on the Flora of Faversham *and its Neighbourhood. By the* Rev. Hugh A. Stowell, Cor. Memb. B.S.L.

The country which surrounds Faversham is in many respects a remarkably favourable district for the study of Botany. Within the limits which I propose to embrace in this short contribution to the history of its Flora,—namely, the tract lying between the Blean Woods and Seasalter on the east, and Teynham and Norton on the west, between the Swale on the north and Throwley, Newnham, and Perry Hill on the south,*—we have many and great varieties of soil and feature. On its surface it presents to us marsh-lands, salt-marsh, chalk, gravel, clayey loam, and a small bit of pebbly beach. The strip of land which borders the Swale, a strait or arm of the sea, forms the northernmost portion of this district, varying in breadth from one and a half to two and a half miles; this, with the exception of the beach at Seasalter, is all level marsh-land, for the most part drained by a network of broad dykes, and affording a rich pasturage to numerous herds and flocks. It is guarded from the encroachments of the sea by a series of sea-walls; two salt-water rivers, or rather creeks, intersect it, known as Faversham Creek, which runs up into the town and is navigable at high water for vessels of light burden, and Oare Creek (otherwise Oare Stray), which lies about a mile to the north-west of the other. What I have called salt-marsh comprises the narrow margins of the creeks and of the Swale, for the most part lying outside the sea-walls. To the south of the marsh-lands the substratum is apparently everywhere chalk, for it crops out through the gravel at Syndale and elsewhere, and there are chalkpits in the loam as at Ewell.† The gravel is of two kinds,—a sandy red gravel, and a collection of pebbles exactly resembling a sea-beach. This last covers an isolated hill of considerable height in the south-east corner of the district defined above. The tract overlaid with the former consists chiefly of two dwarf hill-ridges, separated by an intervening valley of clayey loam; this loam forms a belt between the marsh-lands and the chalk tract, broader to the east of Faversham than to the west, on which side it is crossed diagonally by these gravel hills. The chalk appears on the surface in the hilly country to the south of the loam, which however still hides it under a shallow covering in the valleys, and the London road divides the loam-belt from the chalky tract pretty accurately. There is plenty of woodland both upon the chalk and gravel, but chiefly copse and underwood. We have no bog or moorland, scarcely any inland meadows and pastures, for except the marshes I should say that nineteen-twentieths of the land not under wood is arable; nor have we a stream which deserves the name, except perhaps the brook that runs through Ospringe into the creek.

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* The furthest point is scarcely five miles from Faversham.

† I should like to tell my readers (if they do not already know it), before I plunge deeper into the mire, that I am no geologist: never mind the names, if they can only understand what I mean.

There are many causes at work which are, I fear, gradually—but alas! too speedily—thinning the ranks of our local Flora. The first and by far the most formidable of these is high farming,—the very highest of the high. It is scarcely credible the miles of hedges that have been extirpated, of hedge-banks that have been levelled, of ditches that have been filled up, and the thousands of roadside trees that have been felled in this neighbourhood within the last fifteen years. You may walk now across the fields, or rather field, from Preston Mill to Mr. Apsley's farm, a distance of two miles as straight as an arrow, and the only bit of hedge you will see is the few yards in length round the farmstead at Westwood. And who that knows and loves our English lanes and hedgerows, with all the treasures that they hide, can help feeling some sympathy for one who has the same heart, the same likes and dislikes, and yet is condemned to watch year after year the rapid march of this Vandal host of improvements? And this is not all. High farming makes clean land, and surely such clean land was never seen in any other county. I have passed through wheat-fields in which not a Poppy, a Cockle, a Bluebottle, or even a Sowthistle was visible! Would that nothing rarer than these ever fell before the ruthless hoe, or helped to fill the apron of the weeder; but, woe is me! the clean-land farmer spares no "weed." Our untamed marsh-lands begin to feel the plough; man encroaches while the sea forbears, and will do so still further if wheat keeps up such a tempting price, for they often make the best of wheat-lands when duly drained and put through a course of "radical" physic. Some small bits of woodland have vanished under the same iron rule. Nor is the plough the only enemy our marsh-land Flora has to fear: the "manufacturing interest" claims its share, though *here* happily but a modest one. And the blackened walls and palings of the powder-mill have crept round at least one spot that was famous of yore (a yore of but few years) in our floral annals, and their fatal embrace has strangled and smothered two or three most dainty beauties that affected such a perilous neighbourhood. Moreover the marshes generally are now in the hands of Commissioners. Oh, names of ill omen to Botanists, as well as to "dons and chiefs" of old Alma Mater! Empowered by Act of Imperial Parliament to dig, scavenge, rake, cut, and do what seems them good in the dykes and drains. And too well do they *execute* their office: year after year the spade, and the sweeping scythe, and the long gaff-hook repeat the slaughter of ten thousand floral innocents. One more croak, and I will cease my raven-like burden of woes. Even now there are eventualities which it is not pleasant to contemplate. Many, many of our fairest, rarest flowers are sleeping now their quiet dreamless winter sleep, unconscious that a sword hangs by a hair over their heads, that their pleasant sunny existences are at the mercy of farmers, commissioners, builders, roadmakers,—Goths and Vandals all! One little hedge, still left only because it serves to shelter a hop-garden, is the home of the two or three plants of *Lathyrus sylvestris* that still cling to our hedgeless neighbourhood. O *Humulus*, own brother of the pretty climber, shoot up and bourgeon well, and hang thine odorous clusters thickly around the staff that bears thee up, lest haply the mandate of the impatient grower go forth for thy destruction—and *hors!* Once more, it only needs a few more mushroom houses to shoot up along the creek-side (and they already almost outflank on the opposite bank), and *Bupleurum tenuissimum* (humble annual, but rare) will be numbered with the hundred flowers that *were* in the good old days of Faversham, when the Abbey still stood, but *are* not now, even as the Abbey is not. But

> "'Croak, croak, croak!' quoth the Raven bold,
> 'I may croak till I'm hoarse, I may croak till they're old,
> And *they'll* never heed me, these delvers in mould,
> Blind moles as they are, aye grubbing for gold.'"

So thereupon "flap went *his* wings and away." This is not exactly what I intend to do, but rather without further "croaking" to plunge *in medias res*, and describe, as fully and yet concisely as I can, the most marked features of the Flora of Faversham and its vicinity. And first of all let me do all honour to the veterans who have already beaten the path so well for their humbler followers. Our flora has been peculiarly fortunate in finding chroniclers from time to time. Early in the last century a MS. list, compiled by John Bateman, M.A., and containing about two hundred species, furnished Blackstone with the habitats of about forty species for his 'Specimen Botanicum' in 1746. Mr. Jacob, a resident surgeon, was however the first who gave to the world the result of his researches in this field. His book, entitled 'Plantæ Favershamienses,' was published in 1777, and is now very scarce. He was followed, after an interval of sixty-two years, by Mr. M. H. Cowell, at that time a resident in Faversham, who in 1839 published a most admirable 'Floral Guide,' in which the exact localities of our local species are noted with very great accuracy and fulness, accompanied with much valuable information and a map, on which the various walks to be taken are laid down. I have not the pleasure of knowing that gentleman, but of course he is a reader of the 'Phytologist,' and I am happy to be able thus publicly to thank him, and to acknowledge the great assistance which his book has rendered me in exploring a *terra incognita*, for such this neighbourhood was to me two years and a half ago. Mr. Cowell might with truth have styled his work 'Herborizing Made Easy;' for so minute are his directions, that any one taking it in his hand may be perfectly certain whether he is on the exact spot he seeks or not, thus avoiding the annoyance and loss of time often involved in a search over a vaguely defined locality. But for this peculiar merit I should hardly have dared to pronounce any of the species which he enumerates to be extinct, which is already, I fear, in several instances the case. Mr. Jacob's list described as growing within the limits I have before defined 528 of the species and varieties allowed in the London Catalogue, but entirely omitted the *Juncaceæ*, *Cyperaceæ*, and *Gramineæ*. Of this number eighty-one were lost before 1839, or at least not found by Mr. Cowell. This gentlemen numbered up 546 species and varieties, including the orders omitted by Jacob, but did not extend his inquiries further than a circuit of about three miles round the town. Of his list, I have failed, after a careful search, in discovering twenty-one. Many have changed their habitats. A few mentioned by Jacob as growing within Cowell's limits, but not included in his Guide, and several others just beyond those limits, have been rediscovered, and with a sprinkling of new species added to our Flora, making its extent in all 614 species and varieties of the London Catalogue. I subjoin two lists, the first showing our losses since 1777, the other our gains in the same period: I am sorry to say the balance-sheet is rather unsatisfactory. J. or C. affixed to the name in the first list shows the now extinct species to have been recorded by Jacob in 1777, or Cowell in 1839; C. or S. following the name in the second list marks its addition to our Flora by Mr. Cowell or by myself (1854–55):—

Extinct Species and Varieties. (102.)

Thalictrum flavum, J.
Adonis autumnalis, J. C.
Delphinium Consolida, J. C.
Nuphar lutea, J.
Corydalis claviculata, J.
Lepidium latifolium, J.
Arabis Turrita, J.
Nasturtium amphibium, J.
Sinapis alba, J.
Saponaria officinalis, J. C.
Mœnchia erecta, J.
Spergularia rubra, J.
Cerastium aquaticum, J.
Radiola Millegrana, J.
Althæa officinalis, J. C.
Hypericum Androsæmum, J.
,, montanum, J.
Genista tinctoria, J.
,, anglica, J.
Astragalus Glycyphyllos, J. C.
Vicia lathyroides, J.
Prunus insititia, J.
Spiræa Filipendula, J.
Myriophyllum verticillatum, J.
Lythrum Salicaria, J.
Peplis Portula, J.
Berberis vulgaris, J.
Ribes nigrum, J.
,, rubrum, J.
Saxifraga granulata, J.
Chrysosplenium oppositifol., J.
Smyrnium Olusatrum, J.
Petroselinum segetum, J.
Helosciadium inundatum, J.
Bupleurum rotundifolium, J.
Œnanthe pimpinelloides, C.
Fœniculum vulgare, J.
Silaus pratensis, J. C.
Anthriscus vulgaris, J.
Galium Witheringii (*Sm.*), C.
Hieracium boreale, J.
,, umbellatum, J.
Arctium Bardana (*Willd.*), J.
Serratula tinctoria, J.
Centaurea Calcitrapa, J.
Bidens cernua, J.
,, tripartita, J.
Tanacetum vulgare, J.
Artemisia Absinthium, J.
Petasites vulgaris, J. C.
Inula Helenium, J.
Pulicaria vulgaris, J.
Achillea Ptarmica, J.
Erica Tetralix, J.
Vinca major, J. C.
Cuscuta europæa, J.
Atropa Belladonna, J. C.
Verbascum nigrum, J.

Veronica scutellata, J.
Pedicularis palustris, J.
Antirrhinum Orontium, J.
Orobanche major, J. C.
Mentha rotundifolia, J.
,, viridis, J.
,, Pulegium, J.
Melissa officinalis, J.
Leonurus Cardiaca, J.
Marrubium vulgare, J.
Anchusa sempervirens, J. C.
Primula elatior (*Anglor.*), J.
Hottonia palustris, J.
Lysimachia vulgaris, J.
,, nemorum, J.
,, Nummularia, J.
Anagallis tenella, J. C.
Amaranthus Blitum, J.
Chenopodium polyspermum, J.
,, urbicum, J. C.
,, murale, J.
,, hybridum, J. C.
Polygonum amphibium, J.
Rumex sanguineus, J.
Euphorbia platyphylla, J.
Populus tremula, J.
Salix alba, J.
,, triandra, J.
Spiranthes autumnalis, J. C.
Epipactis latifolia, J. C.
Orchis ustulata, J.
,, militaris, J.
Habenaria viridis, J.
Herminium Monorchis, J.
Narcissus Pseudo-N., J. C.
Galanthus nivalis, J.
Ornithogalum umbellatum, C.
Paris quadrifolia, J.
Potamogeton pectinatus, J.
,, gramineus, J.
,, perfoliatus, J.
,, lucens, J.
Lemna polyrhiza, J.
Ophioglossum vulgatum, J. C.*

To these may be added 3 of the "excluded species" of the London Catalogue, viz. *Lathyrus latifolius, Datura Stramonium,* and *Polygonum Fagopyrum,* all recorded both by J. and C., but not now met with.

The *Juncaceæ, Cyperaceæ,* and *Gramineæ* have not lost any species since 1839, previous to which year we have no catalogue of them.

Added Species and Varieties. (83.)

Ranunculus hirsutus, C.
Papaver hybridum, C.
,, Argemone, C.
,, dubium, C.
,, somniferum, S.
Fumaria capreolata, S.
Fumaria micrantha, S.
Cakile maritima, S.
Thlaspi arvense, S.
Lepidium campestre, S.
Cardamine hirsuta, S.
Arabis Thaliana, C.

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* Jacob speaks of *Ceterach officinarum* as very recently lost on the Abbey-walls. The curious *Echinophora spinosa,* which Blackstone gave in 1746 as growing between Faversham and Seasalter, had also disappeared previous to 1777.

Polygala calcarea, S.
Silene maritima, S.
Sagina apetala, S.
Honckenya peploides, S.
Arenaria trinervia, C.
Stellaria uliginosa, S.
Tilia intermedia, C.
Medicago sativa, C.
Trifolium subterraneum, C.
  ,, striatum, S.
Orobus tenuifolius (*Roth*), S.
Rubus glandulosus, S.
  ,, corylifolius, S.
Poterium Sanguisorba, C.
Mespilus germanica, S.
Pyrus Aria, C.
Callitriche pedunculata, S.
Sium angustifolium, C.
Bupleurum tenuissimum, C.
Galium tricorne, S.
Centranthus ruber, C.
Tragopogon minor (*Fries*), S.
Picris hieracioides, S.
Lactuca muralis, S.
Hieracium murorum, S.
  ,, vulgatum, C.
Taraxacum palustre (*DC.*), S.
Senecio viscosus, S.
Anthemis arvensis, C.
Specularia hybrida, S.
Vaccinium Myrtillus, S.
Cuscuta Trifolii, S.
Veronica Buxbaumii, S.
Linaria Cymbalaria, C.
  ,, purpurea, C.
Mentha sativa, S.
Calamintha nepetoides, C.
Ajuga Chamæpitys, S.
Galeopsis versicolor, S.
Stachys arvensis, C.
Myosotis repens, S.
  ,, sylvatica, C.
  ,, collina, C.
  ,, versicolor, C.
Atriplex littoralis, C.
Polygonum laxum (*E.B.S.*), S.
  ,, dumetorum, S.
Rumex aquaticus, S.
Salix pentandra, C.
  ,, purpurea, C.
  ,, Helix, C.
  ,, Smithiana, S.
  ,, cinerea, S.
  ,, ambigua, S.
Gymnadenia conopsea, C.
Triglochin palustre, C.
Zannichellia palustris, C.
Zostera marina, C.

Cowell enumerated—
13 species of Juncaceæ,
21 species of Cyperaceæ,
56 species of Gramineæ.

Added since 1839,—
Scirpus cæspitosus, S.
Carex stellulata, S.
  ,, ovalis, S.
  ,, intermedia, S.
  ,, divulsa, S.
  ,, vulpina, S.
  ,, binervis, S.
  ,, panicea, S.
Alopecurus fulvus, S.
Aira præcox, S.
Avena fatua, S.
Poa Borreri, S.
Blechnum boreale, S.

The following 34 species recorded by Jacob, but omitted by Cowell, have been observed, 1854–5 :—

Glaucium luteum.
Raphanus Raphanistrum.
Cerastium semidecandrum.
Malva moschata.
Erodium cicutarium.
Geranium columbinum.
Rhamnus cathartica.
Trifolium medium.
Ornithopus perpusillus.
Lathyrus Nissolia.
Potentilla nemoralis, *Nest.*
Rubus Idæus.
Rosa rubiginosa.
Pyrus Malus.
,, Aucuparia.
Eryngium maritimum.
Pimpinella magna.
Œnanthe Phellandrium.
Angelica sylvestris.
Pastinaca sativa.
Pyrethrum Parthenium.
Matricaria Chamomilla.
Campanula rotundifolia.
Hyoscyamus niger.
Verbascum Lychnitis.
Rhinanthus Crista-galli.
Cynoglossum officinale.
Atriplex Babingtonii.
Beta maritima.
Salsola Kali.
Polygonum lapathifolium.
Allium ursinum.
Potamogeton natans.
Equisetum sylvaticum.

(*To be continued.*)

Hints on a new Character in Ferns. By Rev. W. A. Leighton, B.A., F.B.S.E.

The interesting paper of Mr. Wollaston, on the spores of *Lastrea Filix-mas,* in the 'Phytologist,' page 171, recalled to my mind that in 1842 I busied myself in making dissections and microscopical drawings of as many British Ferns as, at that time, I could conveniently obtain in a living state. The professed object of my investigation was the endeavour to discover the male organs of fertilization; for which purpose I minutely examined every portion of the frond in every stage I could procure it—young, old, rolled up, and unrolled, but of course without detecting the direct object of my research, which it is well known now that other investigators have succeeded in finding in another phase of the plant's development; nevertheless many singular and interesting sights presented themselves to my eyes, particularly in the unrolled state of the fronds, where many organs existed in such close proximity to the young sori that at first sight they had every appearance of being the male organs.

Fig. 1.

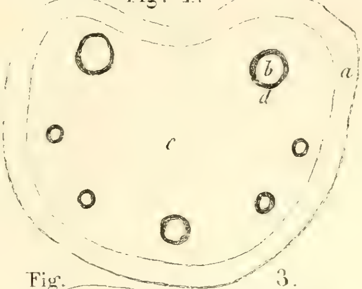


Fig. 2.

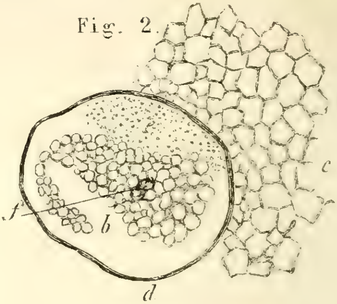


Fig. 3.

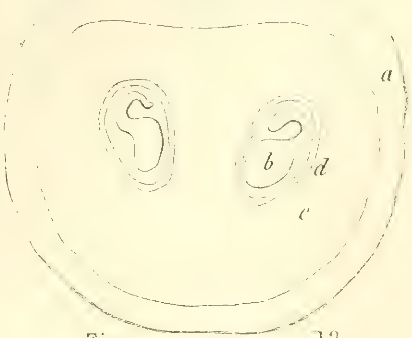


Fig. 4.

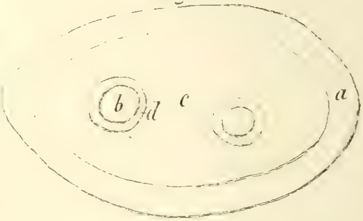


Fig. 13.

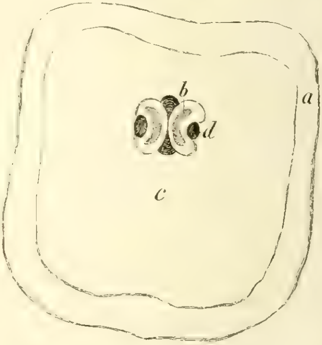


Fig. 12.

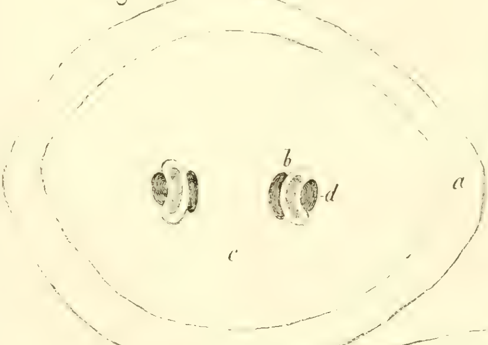


Fig. 5.

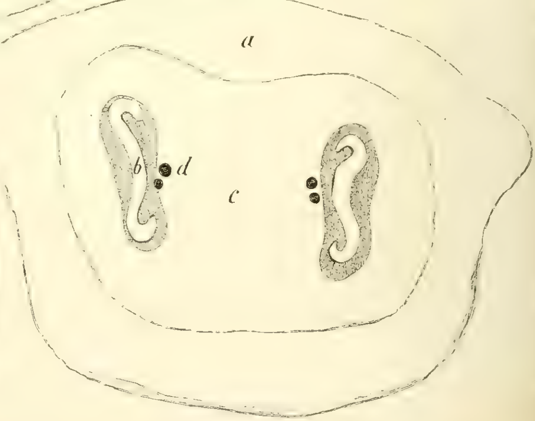
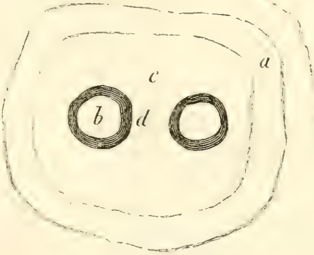


Fig. 10.



These however disappeared on the same parts in the fully developed frond. Amongst other things the spores did not remain unnoticed; but I must confess I did not observe in their forms, size, or markings, such differences as to render them of sufficient importance as specific characters; nevertheless I do not assert that such do not exist; but it did occur to me at that time, that the form, number, and relative position of the fascicles of the vascular tissue, observable in transverse sections of the stipes, might possibly be made available as a distinctive character. Whether this character would prove generic or specific, my researches were not carried out to a sufficient extent to determine accurately, for my attention was soon afterwards diverted from the subject, which was never subsequently resumed. I have selected from my drawings, preserved from that period, the accompanying rough sketches of transverse sections of the stipes of a few British Ferns, which, with the accompanying descriptions, will explain my meaning. It is to be wished that some student of this beautiful family of plants would follow out the investigation through the remainder of our British forms.

Fig. 1. Transverse section of stipes of *Lastrea Filix-mas*, Presl. The stipes is composed of an external zone of close woody tissue (*a*), surrounding the mass of cellular tissue (*c*), which forms the central portion. In this cellular tissue are imbedded seven fascicles of vascular tissue (*b*), various in size, round in form, and placed near the external woody zone.

Fig. 2 represents one of these fascicles of vascular tissue (*b*) on an enlarged scale, showing it to be composed of a thin outer layer or zone of oblong muriform cells of a dark brown colour (*d*), within which is a dense mass of woody tissue (*e*), enveloping a cluster of scalariform vascular tissue, pear-shaped, and curved at the narrower extremity (*f*).

Fig. 3. Transverse section of stipes of *Lastrea Thelypteris*, Presl. Here the vascular fascicles are two, large, oblong or ovoid, parallel, slightly diverging from each other in the upper part, occupying the centre of the section. Each of these is surrounded by a pale or colourless thin layer or zone, enveloping the woody tissue in which is imbedded the vascular tissue itself, of a peculiarly graceful, swanlike form. This section was made about the middle of the stipes; but fig. 4 is a section near the base of the stipes, in which the fascicles appear round and parallel.

Fig. 5. Transverse section near base of stipes of *Lastrea Oreopteris*, Presl. Here the outer woody zone (*a*) is of a dark brown colour, the central cellular tissue (*c*) pale white, the vascular fascicles (*b*) oblongo-subreniform, two, large, parallel, central, the vascular tissue itself of a narrow linear, curved, vermiform figure, the dark-coloured zone reduced to two rounded dots on the internal side of each vascular fascicle. Higher up the stipes the dark-coloured dots disappear altogether, the vascular fascicles remaining unaltered in form.

Fig. 6. Transverse section near base of stipes of *Polypodium vulgare*, Linn. Vascular fascicles four, round, in pairs, upper pair larger, encircled by dark-coloured zone, vascular tissue reniform. In a section higher up the stipes the smaller and lower pair unite into one fascicle, and still higher they disappear altogether, and the larger pair coalesce into one, as in fig. 7.

Fig. 8. Transverse section of *Polypodium Phegopteris*, Linn., near base of stipes. Vascular fascicles two, central oblong, rather large in proportion, diverging from each other in the upper part, no dark-coloured zone, vascular tissue itself narrow linear-reniform. In a section higher up the vascular fascicles coalesce into one large heart-shaped fascicle, the vascular tissue uniting at the base as in fig. 9.

Fig. 10. Transverse section of stipes of *Polypodium Dryopteris*, Linn. Vascular fascicles two, central, parallel, round, surrounded with dark-coloured zone.

Fig. 11. Transverse section of stipes of *Asplenium Ruta-muraria*, Linn. Vascular fascicles single, central, irregularly rounded, without any dark-coloured zone; vascular tissue in two bundles, crescent-shaped, placed relatively back to back.

Fig. 12. Transverse section of base of stipes of *Scolopendrium vulgare*, Sym. Vascular fascicles two, central, small, parallel, kidney-shaped, each flanked on opposite sides by two oblong dark-coloured masses, various in size and form; vascular tissue itself narrow, linear-reniform. In a section higher up the stipes the two fascicles combine into one mass, as in fig. 13.

Fig. 14. Transverse section near base of stipes of *Blechnum boreale*, Sw. Vascular fascicles two, small, central, parallel, broadly oblong, without any dark-coloured zone; vascular tissue reniform. Fig. 15 shows section higher up, in which the two principal fascicles are pushed upwards towards the upper surface

of the stipes, and a third smaller one introduced intermediately and basally.

Fig. 16. Transverse section of stipes of *Osmunda regalis,* Linn. Vascular fascicle single, large, of a singular cordato-arcuate form, following the curvature of the circumferential outline of the stipes, incurved and globose at the extremities, no dark-coloured zone.

I should observe, that although it will be noticed that the form and relative position of the vascular fascicles vary considerably according to the particular part of the naked stipes, where the section is made, whether it be at the base, or the middle, or the upper portion, still the variations noticed above will be found invariable and constant at those spots, and consequently, when once clearly ascertained, easily recognizable, and therefore available apparently as a distinctive character. Among the pinnæ other variations also occur, but sections through this part have not been taken into account. It should also be stated that this character is to be looked for in the *living* form, not in dried specimens.

The nomenclature is that of the London Catalogue of British Plants, 4th edition. The letters in all the figures refer to the same portions.

Shrewsbury, December 10, 1855.

Plants found in the Neighbourhood of Settle, Yorkshire, *omitting some of the very common ones. By* JOHN WINDSOR, F.L.S., F.R.C.S., etc.

(*Continued from page* 178.)

Paris quadrifolia. Not uncommon, as in Kelkowe, Major Spring's, Kendall Gill, etc.

Adoxa Moschatellina. Several places about Settle, Giggleswick, etc.

Butomus umbellatus. (Ribble-side, below Rundley bridge, *J. Tatham.*)

Andromeda polifolia. In tolerable plenty in the Osier-ground between Foredale and Hellwith bridge.

Pyrola minor. (Hesleden Gill, near Penyghent. Clabdale Wood, near Clapham, *J. Howson.*)

Chrysosplenium alternifolium. Not uncommon about Settle.

Chrysosplenium oppositifolium. Not uncommon about Settle.

Saxifraga umbrosa. In a shady place under a rock, by the side of the rivulet in Hesleden Gill, about a quarter of a mile from the house. June 30, 1806. (It was previously seen here by Bingley.)

Saxifraga oppositifolia. Rocks on the north side of Ingleborough, with *Saxifraga aizoides;* also on the west side, a little above Foal-foot. On the north-east of Penyghent, on almost every rock; plentifully.

Saxifraga aizoides. Plentifully on the middle rocks on the north side of Ingleborough, as observed here by Ray, as well as *S. aizoides.*

Saxifraga granulata. Not uncommon about Settle, as on High-hill, and under walls on the road to Malham. Lord's Wood, Top of the Banks, etc.

Saxifraga tridactylites. Common on walls and in some pastures.

Saxifraga hypnoides. On many of the mountainous pastures about Settle, as Giggleswick Scar, Richardson's Scar, Moughton, Highhill, Lord's Woods, Banks, etc.

Saxifraga hypnoides, var. *palmata?* North side of Moss, at the end of Malham Tarn.

Saponaria officinalis. Giggleswick School-yard. In a small field by Mitchell Lane.

Silene inflata. In a few places about Settle.

Stellaria nemorum. Trow Gill, at the top of Clabdale Woods, betwixt Clapham and Ingleborough. Holling-hall Woods.

Stellaria graminea. On the edge of Giggleswick Tarn, etc.

Stellaria uliginosa. Near Giggleswick Tarn. Boggy places at the foot of the Crags. Settle Brows.

Mœhringia trinervis. Roadside near Catteral Hall. Near the wall-side, at the top of Kendal's Gill.

Arenaria serpyllifolia. Highhill Lane. Kelkowe. Waste ground below Birkbeck's Weir, etc.

Alsine verna. On the Banks above Settle. Middle Highhill. By the road to Cowside. By the calamine or lead-mines between Settle and Malham, plentifully.

Alsine verna, var. *β, A. Gerardi,* or *laricifolia* of With.? Field between Stackhouse-Borrins and Feizor.

Sedum sexangulare. In 1801 I found specimens of what I considered to be this plant on the left hand just below Malham Cove.

Sedum villosum. At the foot of the Crags and of the Rye-loaf Hill. Swarthmoor. Long Preston Moor. Roadside near Cowside, and between Settle and Penyghent, etc.

Sedum reflexum. On Castleberg, near the chair under the rock. On a wall on the right-hand side of the road, nearly opposite Dalaire Lane bottom.

Oxalis Acetosella. Not uncommon about Settle.

Lychnis Githago. Occasionally met with in cornfields.

Lychnis Flos-cuculi. Common.

Lychnis diurna. Common.

Lychnis vespertina. Occasionally met with.

Cerastium glomeratum (*C. vulgatum,* Linn.). Common.

Cerastium triviale (*C. viscosum* of Smith). Common.

Spergula arvensis. Cornfields about Rathmell, etc.

Spergula nodosa (*Sagina nodosa* of Babington). Sides of rivulets about Giggleswick Tarn.

Lythrum Salicaria. About Giggleswick Tarn, etc.

Agrimonia Eupatoria. Not uncommon in woods and hedges, as in Lord's Wood, Kelkowe, Mill Island, etc.

Reseda Luteola. Side of a rivulet just below Clapham bridge.

Euphorbia exigua. In cornfields, occasionally. (In 1801 found by the late Rev. John Carr, in a cornfield belonging to his father, near Stackhouse-Borrins.)

Prunus Padus. Kelkowe. Wood between Settle and Stackhouse. Roadside nearly opposite Meer-Beck.

Prunus insititia. Near the cotton-mill at Rathmell.

Prunus spinosa. Not uncommon.

Pyrus Malus. In several places about Settle, apparently wild.

Pyrus Aria. Fissures of rocks, a little above where *Cypripedium Calceolus* grows, near Arncliffe. Kilnsey Crag. At Malham Cove's Top.

Spiræa Ulmaria. In meadows. Not uncommon.

Rosa spinosissima. Rocks in Kelkowe, and in Cavehole Wood.

Rosa rubiginosa. Kelkowe.

Rosa villosa. Near Attermire Cove (with *Thlaspi alpestre*). Wardale Knotts. Craven Bank, near the Tan-pits. Just below Settle Bridge.

Rosa tomentosa. Kelkowe.

Rosa Sabini, var. *β, doniana.* Helk's Wood, near Ingleton, *Mr. John Tatham.*

Rosa canina. Very common.

Rosa canina, var. *ε, Forsteri.* Stackhouse Lane, *Mr. J. Tatham.*

Rosa inodora (Borreri). Cavehole Wood.

Since the particular examinations of the genus *Rosa* and *Rubus* by my old friend, Mr. Joseph Woods, and other Botanists, probably other species besides those I have mentioned might be met with near Settle.

Rubus Idæus. Cavehole Wood. Cleatop Parks. Lodge Gill. Crags, etc.

Rubus cæsius. Kelkowe. Giggleswick Scar. Cavehole Wood. Ribble-side, a little below Settle Bridge.

Rubus corylifolius. Cavehole Wood, etc.

Rubus discolor (*fruticosus* of Linn.). Hedges, etc. Common.

Rubus saxatilis. Lord's Wood. Cavehole Wood, etc.

Rubus Chamæmorus. Upon the ascent to Ingleborough. Foot of Penyghent, on the north side, where it pretty entirely covers a pasture. Rye-loaf Hill. Hills near Cowside, etc.

Fragaria vesca. Not uncommon.

Potentilla Fragariastrum. Not uncommon.

Potentilla verna. Kelkowe. Top of Lord's Wood, adjoining ditto. Stainforth Scars. Bottom of the wood at the end of Moughton. Kilnsey Crag. Rocks in the glen on the right-hand side betwixt Grisedales and Malham Tarn, if, as I suspect, this last habitat does not belong to *Potentilla alpestris,* of which I have a specimen in my collection, accidentally intermixed with those of *Potentilla verna.*

Potentilla alpestris. Probably in the habitat last mentioned under *P. verna.* (Silverdale Head, *Mr. J. Tatham.*)

Tormentilla officinalis. Not uncommon.

Tormentilla reptans. Roadside between Settle and Wigglesworth; plentifully.

Geum urbanum. Common.

Geum rivale. Common.

Dryas octopetala. Arncliffe Clouder (June, 1805), as previously observed by Curtis.

Comarum palustre. Giggleswick Tarn.

Chelidonium majus. In a few localities near Settle.

Actæa spicata. Clefts of rocks at the foot of Ingleborough; plentifully. Also in Hesleden Gill, near Penyghent. Rocks between Arncliffe and Darnbrook. Rocks between Chapel-in-the-Dale and Meer Gill. A few plants at the side of the brook below Malham Cove.

Nuphar lutea. In some parts of the River Ribble between Settle and Long Preston.

Nymphæa alba. Giggleswick Tarn.

Helianthemum vulgare. Kelkowe. Lord's Wood, etc.

Aquilegia vulgaris. Kelkowe. Stainforth Scars.

Anemone nemorosa. Mill Island, etc.

Thalictrum minus. Giggleswick Scar. Richardson's Scar. Gordale, etc., as noticed in Ray's time.

Thalictrum flavum. Banks of the Ribble, between Settle and Stackhouse. East-field Wood, near Arncliffe.

Thalictrum majus. Arnforth Wood, near Long Preston, *Mr. T. Nuttall.** On the banks of the Wenning, between Settle and Horaby, *Mr. W. Kenyon.*

Ranunculus auricomus. Kendal's Gill. Kelkowe, etc.

Trollius europæus. In several places near Settle, as in Mill Island. The banks of the Ribble, etc.

Helleborus fœtidus. Feizor, and near the old Tan-pits at Langcliffe.

Mentha viridis. Side of Giggleswick Beck. Roadside near Rathmell.

Mentha viridis, var. δ (?) of Smith. Near the further Penyghent House.

Mentha piperita. Right-hand side of the road near Beggar-wife's Bridge, going from Giggleswick, and by the side of Giggleswick Beck. Roadside in Airton.

Mentha hirsuta (*aquatica* of Babington). Settle Ings.

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* Mr. Thomas Nuttall, F.L.S., a native of Long Preston, near Settle, one of my earliest friends and associates in botanical rambles in our native neighbourhood, is well known for his numerous contributions to the knowledge of the natural history, and especially the botany, of America, where he afterwards spent the best part of his life, but he has a few years since returned to England, residing now at Nutgrove, between Manchester and Liverpool, where he has an extensive garden and collection of living plants.

An Epitome of Botanical Tours in Wales from the earliest period. (*Giraldus Cambrensis and Johnson.*)

(*Continued from page* 219.)

Having returned to Bangor they slept, and next day revisited Glynne-Chivon, and hence travelled by Harlech, where there was a fair, which detained our party a day. Their way was along the coast to Barmouth, crossing the estuary to Machynlleth; But in the midst of this ferry they were overtaken by a tremendous storm of wind and rain, and were fain to take shelter in an adjoining village (Llangwerel). From this they reached Machynlleth, wet and weary, next morning. From Machynlleth the travellers went through Montgomeryshire, where they found nothing worthy of note; but to make up for this, they were hospitably received and entertained by the illustrious Edward Herbert, Lord Cherbury, who possessed a large castle and domain in this part of Wales. Here our party gathered two of our rarest British plants, species that have been branded by our modern purists as having no right to a notice in our books except as intruders. The original of this part of Johnson's account is subjoined:—"Montem-gomerium linquentes recte ad Guerndee viculum tendimus, illicque in alneto semina *Persicariæ siliquosæ* copiose illic crescentis collegimus, *Solidaginem* etiam *Saracenicam* inter *Dudson* et *Guarthlow* eruimus. Hasce duas rariores plantas hic crescentes primum observavit amicus meus singularis *Georgius Bowles,* medicinæ candidatus." In Gerarde's Herbal by Johnson, p. 446 (450 sic typ. err.), there is the following account of the discovery of this plant as a British species:—"The *codded* or *impatient Arsmart* was first found to grow in this kingdome by the industry of my good friend Mr. George Bowles, who found it at these places: first in Shropshire, on the banks of the river Kemlet, at Marington, in the parish of Cherberry, under a gentleman's house called Mr. Lloyd; but especially at Guerndee, in the parish of Cherstock, half a mile from the foresaid river, amongst great Alder-trees in the highway." From the same, p. 428: "I formerly, in the twenty-fourth chapter of this second booke, told you what plant our author took for Saracen's Consound" (our author appears to have *enjoyed* the opportunity of having a *fling* at Gerarde, though but for this author he would have had but a slight memorial in subsequent times), "and, as I have been credibly informed, kept in his garden for it. Now the true *Solidago* here described and figured was found anno 1632, by my kind friends Mr. George Bowles and Mr. William Coot, in Shropshire, in Wales, in the hedge in the way as one goeth from Dudson, in the parish of Cherberry, to Guarthlow." From this point our botanical party, with the exception of "D. Gualterus Stonehousius," who went direct to York, proceeded through Ludlow, Leominster, Hereford, Gloucester, and Oxford, to London.

Here we take our farewell of Johnson, who subsequently is believed to have taken an active part in the troubles which shortly broke out. He is reported to have relinquished the peaceful pursuit of plants, and to have wielded the sword as valiantly as he had in the former period of his life effectively handled the pen. He was a partisan of the royal party, and fell in battle.

About twenty years later than the period of Johnson's visit to North Wales, the illustrious Ray, accompanied by his friend Willughby, visited the Principality, and communicated what he observed in the third of his Itineraries which are published or printed in 'Memorials of Ray,' a work circulated only to members of the Ray Society. These two friends and zealous naturalists set out on Thursday, May 8th, 1662, through Northampton, Coventry, Stafford, Nantwich, and Chester; thence to Denbigh. Here Ray informs us that, "on a bushy hill, near Denbigh, I found *Androsæmum campoclarense* (Hypericum montanum), *Lycopsis,* an elegant plant (Lithospermum purpureo-cæruleum), *Androsæmum vulgare* (Hypericum Androsæmum), *Pentaphyllum tormentillæ facie* (Potentilla argentea). Monday, May the 19th: we this day passed two villages, Henllan and Llanywith, and so through Bettws to Conway, and from thence to Bangor. On Penmaen Mawr I found *Lunaria minor* (Botrychium Lunaria), and a sort of *Sedum minus* (Sedum anglicum?). Tuesday, May 20th: from Bangor we rode to Carnethllewelyn, which signifies Llewelyn's bones, a very high hill; we had not time to search the rocks, and so found no rare plants."

Our readers will note that on this mountain Johnson and his party were overtaken with a storm, and had only the doubtful aid of a timorous guide. Here however Ray noticed *Cotyledon hirsuta* (Saxifraga stellaris), which he also tells us grows plentifully on Snowdon: this was noticed by Johnson.

"Thursday, May the 22nd, we went over to Prestholm Island; there groweth *Hipposilinum* (Smyrnium Olusatrum) in great plenty, *Cochlearia vulgaris*." The editor of the Memorials brackets *C. anglica* as the synonym of this plant. Is not *C. officinalis* found on the coast as well as on the mountains of Wales? "*Crithmum maritimum, Beta maritima,* and a small sort of *Geranium* (Erodium maritimum). Saturday, May the 24th, we rode to Llandwyn and thence to Carnarvon. At Llandwyn we found *Crithmum chrysanthemum* (Inula crithmoides) and *Crithmum maritimum, Hyacinthus autumnalis minor* (Scilla verna, *Huds.*), *Limonium vulgare* (Statice Limonium), and a kind of *Polypody* (Asplenium marinum); on the beaches near Abermenny ferry, in the isle, *Gnaphalium marinum* (Diotis maritima), and a kind of *Leucojum* (Matthiola sinuata), both elegant plants. Monday, May the 16th, we went to Llanberis and so to Bethkellert. By the way, near the upper end of Llanberis pool, we saw growing wild *Papaver erraticum luteum Cambro-Britannicum* (Meconopsis cambrica)," [*Qy.* Is this the first record of the plant as a spontaneously growing species?] "and near the stone tower (Dolbadern Castle) a species of *Orchis palmata* (Gymnadenia albida). An old man at Bethkellert told me that *Meum* (M. athamanticum) grows upon Carnedwen, a mountain betwen Bala and Dolgelle. Tuesday, May the 27th, we set out for Snowdon and so to Clenog, about twelve miles. On Snowdon hill we found that species of *Adianthum floridum* (Allosorus crispus) which we had before observed in Westmoreland."

On Thursday, the 29th, the travellers visited Bardsey, more notable in the day when Giraldus Cambrensis with his band of Crusaders travelled through Wales, than it is now. In reference to this island, remarkable for its 10,000 graves of saints, still deemed sacred, our facetious favourite, Dr. Fuller, with more wit than piety, remarked that it would, in his time, be easier to find 10,000 graves, than 10,000 saints to occupy them. The traditionary account of this famous spot, formerly known as the Island of the Saints, is, that after the slaughter of the Monks of Bangor-is-y-coed, the persecuted men who had embraced Christianity, sought and obtained a refuge here and established a sanctuary, where they found repose from the troubles which then raged through the Principality.

"On Saturday, May the 31st, we rode to Harlech, where there is a strong castle built on a high rock, close by the sands; also a great level, which they call the Marsh. Hereupon grows in plenty *Juncus acutus maritimus, sive capitulis Sorghi* (Juncus acutus). Monday, June 2nd, we rode to Aberdovy, where lives the Lady Lloyd, who informed me that *Rubia tinctorum* (R. peregrina) was found growing wild on the rocks there by Dr. Bowles" (see Gerarde, Em. p. 1120, where Johnson states Mr. George Bowles found this plant growing wild on St. Vincent's Rock, and out of the cliffs of the rocks of Aberdovie in Merionethshire). This terminates our travellers' tour in North Wales. The chief plants which they collected at this early period of the year, and which were not noticed by Johnson, are these:—*Rubia peregrina, Scilla verna, Matthiola sinuata, Meconopsis cambrica, Gymnadenia albida, Erodium maritimum, Inula crithmoides, Smyrnium Olusatrum, Hypericum montanum, Lithospermum purpureo-cæruleum, Botrychium Lunaria, Potentilla argentea.*

The next account of the Botany of Wales is contributed by Mr. Edward Lhwyd, a very learned Cambrian, who was born about 1670 at Lhanvorde, and educated at Oxford, where he succeeded Dr. Plot in the curatorship of the Ashmolean Museum. This antiquarian is better known by his works on literary subjects than by his contributions to botany. His 'Archæologia Britannica' is his masterpiece, his *magnum opus,* a great monument to the industry and learning of its author. He is also the author of a work on Fossils, systematically arranged, and the first palæontological work which appeared in this country.

The following are extracted from the 'Philosophical Transactions':—

Extract of a Letter from Mr. Edward Lhwyd, M.A., to Dr. Richard Richardson, M.D., of North Bierly, in Yorkshire. Oxford, Nov. 24, 1696.

"The next day after we parted at Kapel Kirig, I found plenty of the *Bistorta* and the *Nasturtium petræum* (Teesdalia nudicaulis?) of Johnson, and I think a new plant in the small lake of Phynnon Vrêch, where the *Subularia* grew. I sent roots of the *Bistorta* and *Nasturtium* both to the Duke of Beaufort's and to this Physic Garden, but whether they live or no I know not, having not been yet in Mr. Bobart's garden. I met with several rare plants in other places, as *Echium marinum,* J. B. (Steenhammera maritima), *Asparagus sylvestris* (A. officinalis), *Eruca marina* (Cakile maritima), *Eruca sylvestris laciniata lutea* (Sinapis monensis), *Dulcamara* *marina*, *Tithymalus marit.* (Euphorbia portlandica?), *Beta marina*, etc., in Caernarvonshire and Anglesea; and in Meirionydshire I found good store of our Snowdon plants at Kader Idris, and *Balsamina lutea* (Impatiens Noli-me-tangere) in the high-road, near a place called Capel Begla. In South Wales I found several plants common which I had never seen in North Wales, such as *Eruca sylvestris*, common on the walls of their towns and castles, *Asplenium*, *Ceterach officinarum*, *Centaureum luteum perfoliatum* (Chlora perfol.), *Linum sylvestre*, *Fagus*, etc. In Pembrokeshire I met with two which I suspect were new, viz. a *Tripolium* and an *Anthyllis leguminosa supina flore coccineo*." [This finishes the botanical portion of this letter.]

From the same to the same.

"*Hay, in Brecon, September* 19, 1698.

"We searched this summer the high mountain by Brecknock, called Y Vaun vwch deni, but found nothing in it new, nor any great variety of rare plants; the most choice were *Sedum alpinum ericoides* (Saxifraga opposit.), in abundance, *Argemone lutea* (Meconopsis cambrica), *Rhodea radix* (Sedum Rhodiola), and about half-a-dozen more of the common Snowdon plants. *Lysimachia Chamænerion dicta* is a common plant, by the name of *Lhysier Milwr*, i. e. *Herba militaris* (Epilobium angustifolium), in the meadows throughout all the upper parts of this country; we also met with *Sorbus legitima* and *Sorbus torminalis* (grown to as great a height as the *Ornus*), neither of which had ever occurred before in Wales. But of all those tropical plants I was surprised at none so much as the *Capillus Veneris verus*, growing very plentifully out of a marly incrustation both at Barry Island and Parth Kirig, in Glamorganshire, and out of no other matter; and also that *Gnaphalium majus americanum* (Gn. margaritaceum, *Lin.*) should grow on the banks of Rymny river (which runs altogether over ironstone) for the space of at least twelve miles, beginning near the fountain-head in a mountain in this county, and yet not a plant of it to be seen elsewhere throughout Wales. In a great lake called Lhyn Savadhan I found a pellucid plant I had never met with before; the leaves are extraordinary thin and transparent, in form not unlike Dock-leaves, but the middle rib is continued beyond the extremity, so that each leaf has a soft prickle at the end, by which note you will be able to tell me what it is." [The rest is not botanical.]

From Edward Lhwyd to Dr. Tancred Robinson, giving an Account of some uncommon Plants growing about Pensans and St. Ives, Cornwall.

". . . We have also met with the *Capillus Veneris verus* (Adiantum Cap.-V.) in abundance in the sea-cliffs about St. Ives; 2. Dr. Sherard's *Scrophularia Scorodoniæ folio*; 3. *Blattaria lutea* (Park?), but the leaves of ours are not jagged; also all the plants mentioned by Mr. Ray to grow here, excepting the *Gnaphalium marinum* (Diotis mar.), which should grow by this town. . . ."

Some of the rarer plants observed first by Lhwyd in Wales, are *Gnaphalium margaritaceum*, Linn., and *Adiantum Cap.-Ven.*; but the most important of Lhwyd's contributions to botany is his discovery of *Lloydia serotina*, a plant limited to Carnarvonshire; for it has not hitherto been detected anywhere else in Britain: it is found on the Alps and Pyrenees.

The most important contribution to our knowledge of the botany of North Wales is from Dr. Richardson, of North Bierley, Yorkshire, who sent a list of plants to Dr. Sherrard: its date is supposed by Mr. Turner to be 1726. The interesting plants named in this communication are the following: *Subularia*, near the old castle (Dolbadern), also the Cambrian Poppy, *Lobelia Dortmanna*, *Isoetes lacustris*, and *Hymenophyllum tunbridgense*, all near Llanberis. *Lycopodium annotinum* is said to have been gathered by Lhwyd, "yet," says the Doctor, "when I was with him we could not find it." This was on the Great Glyder: he adds, "On the same rocks you'll find *Galium boreale* (we gave the modern names to save our readers trouble and to economize space); at Twll Du *Lloydia serotina*, *Silene acaulis*, *Gnaphalium dioicum*, *Saxifraga oppositifolia*, *S. stellaris*, *Epilobium angustifolium* at the mountain-top, growing out of a fissure.

Reviews.

A Monograph of the British Graphideæ. By the Rev. W. A. Leighton. Reprinted from Ann. and Mag. Nat. Hist., ser. ii. vol. xiii.: 1854. Only 100 separate copies printed.

We have much pleasure in commending this Monograph to the attention of our readers, who, we are assured, will unite with us in thanking the reverend author for this disinterested and additional contribution to the knowledge of British botany. One of the results of Mr. Leighton's diligent and successful investigations into this difficult portion of our national Flora is the addition of many new species to this tribe, and the better determination of such as were formerly known. The learned author of the 'British Flora' describes two British genera as comprehended in *Graphideæ*; Mr. Leighton includes nine genera. The genus *Graphis*, Ach., includes several species of the genus *Opegrapha* of our more ancient botanists. *Hymenodecton, Chiographa, Aulacographa, Lecanactis,* are also founded on species of the same genus *Opegrapha.* *Platygramma* is a new genus, for which we do not perceive any other authority than that of the author of this Monograph; the species, or one of them at least, appear to be equally original (new). We hope that all interested in British Lichenography will purchase this Brochure, and we hesitate not to say that with the aid of the very characteristic diagrams of the *sporidia, asci, lirellæ,* etc., together with the detailed verbal descriptions, they will have no difficulty in identifying the species of this tribe. For ourselves, and for the botanists of Great Britain generally, we cheerfully acknowledge our obligations to the author of this very learned and explicit Monograph, and we congratulate him on the successful issue of his meritorious labours.

With all possible deference to the majority of our readers, who, we are convinced from personal knowledge, are as well or better acquainted with Lichens than ourselves, we would write something for the edification of such as do not know what *Lichen* means. For the information of such tyros, it may be stated, in the first place, that these plants (Lichens) abound everywhere except in the water and in the atmosphere; and it is probable that their *sporidia* (reproductive matter) may exist in both these elements. They grow on all uncultivated parts of the ground, whether it be moist or dry; rocks, stones, bricks, tiles, slate, old thatch, are more or less covered by them; except stones in cultivated places, and on roads, streets, etc., Lichens never grow on such: they abound on trees, especially where the atmosphere is moist; also on old palings of parks, on old barns, especially when erected of boards. They appear to be the most permanent forms of vegetation, surpassing in longevity the Oak, the Yew, and even the Baobab or Monkey-bread tree of Senegal, which Adanson conjectures is older than our first parents, for it has survived all the generations of men that have lived since the Creation. The Lichens appear to be as old as the rocks on which they grow. We leave to the geologists the determination of the period when these, the more solid portions of the earth's crust, had their beginning. We do not mean that Lichens are as old as every rock on which they are now seen; many rocks did not emerge from the water or from the land till some time after their creation; but we do mean that rocks above ground and above water also are more or less covered or incrusted with these permanent forms of vegetation. We know also that they speedily appear on most recent erections of every kind, except these buildings be metallic. No botanist, so far as we are aware, has assigned any limits to the duration of this class of plants: the terms *perennial, biennial,* and *annual* do not occur to perplex the beginner with the uncertain periods they are employed to define. Lichens and Mosses also, we believe, baffle the *chronologer* of vegetation, and he prudently leaves the question, how long do they live? in all its original obscurity.

The limits of the individuals composing this Order are almost as difficult to define as their duration is. At one end of the line, or series, or with some part of the circumference, they touch the order *Hepaticæ* (Liverworts); at another, they appear to fraternize with the *Fungi* (Mushroom Family); and by a third, with the *Algæ* (sea and fresh-water weeds). Notwithstanding this connection or affinity with nearly all the Cryptogamic Orders, the majority of them are readily distinguishable from the greater bulk of the individuals of these families. From the Liverworts the Lichens may be distinguished by their colour and their usually firmer consistency: the former are green, or some modification of green; the latter, it may be said, are rarely, if ever, green: they are often olive, brown, scarlet, stone-colour, yellow, white, and almost all colours and shades of colour except green. They are generally of a dry, parchment-like, or leathery, or thread-like *texture,* if such a word is permissible. Some of them have definite shapes, as the Fairy Cup-moss; but they are usually more or less shapeless extensions, variously lobed and divided. Some of them grow erect on the ground or on rotten rocks; others hang on the trunk or branches of trees; and by far the larger part of them spread out horizontally on the ground or on the rocks, etc. Their substance is cellular (composed of cells), or of cells with some fibres intermixed. They are without true roots (some of them have this organ in an imperfect state), or stems, or leaves. They are exceedingly simple, consisting of a *thallus* (either a flat expanded substance or a more or less branching flat and linear form), or a *crust,* and the *fructification.* The thallus or crust is often separable from the medium on which it grows, but it is also inseparable, and can only be detached by detaching a portion of the stone or bark or wood on which it grows. The fructification is of two kinds. First, it exists in various kinds of receptacles all comprehended under the general term Apothecia (ἀπό, from, θήκη, a depository or partial receptacle). These receptacles are either like little shields, as in *Parmelia,* little cups, targets, buttons, tubercles, etc. Second, the fructification often exists as masses of a powdery substance, either in indeterminate forms or combined into more or less evident receptacles.

These plants form a considerable branch of the vegetable kingdom, and have a very important part to perform in the economy of nature. They are the first vegetable beings that clothe the bare rocks, and extend generally to greater altitudes than other plants; hence, by their partial decomposition, a soil is prepared for the growth of plants of a higher grade. They may be called the pioneers of vegetation, always advancing in the van and preparing the way for more important productions. Some of them are valuable as esculents: the Iceland and Irish Moss recommended by the faculty as very nutritive and light food for the sick and the convalescent. The Reindeer Moss, which is so abundant in the northern parts of Europe and is not unknown in England, forms, as is well known, the food of the reindeer, the Laplander's wealth and pleasure. Their value in the arts is still more considerable than their dietetic utilities, to us at least. Some of the most beautiful and costly dyes are derived from Lichens: on this head we refer our readers to the valuable papers by Dr. Lindsay, abstracts and notices of which have appeared from time to time in this Journal.

We hope our readers will excuse this long, though, it must be admitted, rather meagre account of a tribe of plants which are barely known even by name. Most people know Ferns by name, many know Mosses (*Musci*), and every one knows a toadstool; Seaweeds (Marine *Algæ*) are also generally recognized; but we have scarcely ever met any one except a botanist who knew anything about the greyish, yellowish, whitish bodies that hang from trees. The more highly developed forms are called by the unlettered, *Mosses,* for want of a better name. The crustaceous Lichens, whether growing on wood, bark, or stone, etc., are, we believe, universally considered as mere modifications or parts (altered somewhat by exposure) of the rocks, trees, or other substances on which they are produced.

The Natural History of Pliny. Translated, with Copious Notes and Illustrations, by the late John Bostock, M.D., F.R.S., and H. T. Riley, Esq., B.A. Vol. IV. Bohn's Classical Library. Price 5*s*.

We are indebted to the ancient physicians and herbalists (*rhizotomi*) for the scanty information we possess of the botanical knowledge of early times. Hippocrates notices about 150 species of plants, mostly *officinals*,—plants employed for dietetic or curative purposes. The major part of these are plants pretty well identified as species known in the present day. Aristotle, the *facilè princeps* of the philosophers of antiquity, is said to have composed a work on Botany; and in his genuine works there are manifest proofs that his observations on this kingdom of nature, independently of his high order as a systematic original writer, eminently qualified him for laying the foundation of botanical science, and for becoming the father of Botany. This honour however belongs to Theophrastus, the observant pupil of the father of systematic philosophy and prince of naturalists. Theophrastus, the author of two treatises on plants, viz. 'Historia Plantarum' (the history of plants) and 'De Causis Plantarum' (concerning the causes of plants), was born in the year 370 before our era,—in a year memorable for the famous battle of Leuctra. In his works about four hundred plants are either described or noticed. He succeeded Aristotle as the head of the Peripatetic school at Athens; and this celebrated seat of learning long flourished under his presidency. After the subversion of the liberties of Greece, Grecian science and literature found an asylum at Alexandria under the patronage of the Ptolemies, the Greek-Egyptian rulers of that portion of the empire of Alexander the Great.

To the school of Alexandria we are indebted for the next important work on Botany, at least the next in the Greek language. Dioscorides, like Theophrastus, collected the observations of his predecessors, and increased them with his own during his travels in Asia, Greece, Italy, and Gaul. This work may be called the *Pharmacopœia* of his time; and the names of his editors, commentators, and translators would fill a sheet. This celebrated ancient Botanist flourished in the times of Nero, when the famous Pliny was only a youth.* The most popular of the ancient authors on plants is undoubtedly Pliny. His predecessors (we think that Dioscorides preceded him) give us little more than the bare names of plants. Seldom are their articles sufficiently descriptive to enable us to identify their subjects. This, the last of the three worthies of antiquity, often supplies us with an ample description of his plants, and generally adds a mass of information respecting them, either from his own reading (for he refers to a multitude of authors) or from his own observation. The volume before us contains the books of Natural History, from the XVIIIth to the XXIIIrd inclusive. The XVIIIth treats of the natural history of Grain; the XIXth on the cultivation of *Flax* and of various garden plants; the XXth is entitled 'Remedies Derived from Garden Plants;' XXI. is on Flowers, and especially those used for chaplets; Book XXII. is on the Properties of Plants and Fruits, and the XXIIIrd is on the Remedies derived from the cultivated trees.

It would be impossible to give our readers any satisfactory *résumé* of the multifarious contents of this volume. The author was evidently a most learned man: he quotes multitudes of authors, both Greek and Latin, whose names only have descended to modern times; their works have perished—a mournful memento of the old adage, *Morti debemur nos nostraque;* or, "Nothing lasts for ever." But his work is not merely a compilation of what had previously been written on the subject: it contains his own experience, the results of his own observation and his own sagacious remarks. His commentators have not concealed his blemishes, but have sometimes, with rather unkind severity, *shown up* his puerilities and superstitious observances; we hope they had other and better motives for so doing than to show their perspicacity and critical acumen: it is easier to spy a fault than mend it, as the Scotch say. Pliny wrote for the generation of which he was a distinguished member, and he showed his good feeling in adopting many of the prejudices of his age. We will take the liberty of quoting a story which was an old story when Pliny wrote; it has been quoted before, but a good tale will bear twice telling, and this is a good one:—"A certain freedman of Rome (one who had been a slave, but who was subsequently made free), C. Furius Chresimus, was envied by his neighbours because he raised more corn from a small farm than they or some of them could from large farms." He became an object of jealousy to the bad farmers of those days, who, like some in our times, had more land than capital. "They accused him of magic or sorcery, by which he enticed away the crops of others." Let those who wish to cast stones at Pliny or at the men of his age, first read Dalzell on the darker superstitions of Scotland, or even some of the witch-trials in England. "Apprehensive of being condemned when the question was about to be submitted to the tribes, he had all his agricultural implements, his farm-servants, and family brought into the Forum. The iron tools were of first-rate quality, the mattocks were stout and strong, the ploughshares ponderous and substantial, the oxen sleek and in prime condition, the domestic servants robust, well-conditioned, and well clad. When all these had been exhibited, he cried aloud, 'Here, Roman citizens, are my implements of magic; but it is impossible for me to exhibit to your view by bringing into this Forum those midnight toils of mine, those early watchings, those sweats, and those fatigues!'" This good story is a sequel and illustration of certain maxims current long before Pliny's age. The following is a specimen of the wisdom of these ancients:—"He is a bad farmer who has to buy what his own farm would have supplied him with;" for example, to buy guano when he suffers the soakage of his farmyard to be wasted and evaporated in the sun, or to run into the nearest pond or brook; in the one case tainting the pure air, in the other poisoning the good water. "He is a bad manager who does in the day what might be done at night; he is a worse manager who does on a workday what he might have done on a holiday; but he is the very worst of all who works under cover in fine weather instead of labouring in the fields."

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* In this matter (the age when Dioscorides flourished) we follow Sprengel (comp. Hist. Rei Herbariæ). We are aware that Dr. Bostock, in Smith's 'Classical Biography,' adopted a different view.

We beg leave to repeat, in recommending this work, that we are much obliged to Mr. Bohn for giving us a cheap edition of a curious book, and we are obliged to the translators for presenting it in a concise, clear, and readable style.

Chemical Field Lectures: a Familiar Exposition of the Chemistry of Agriculture, addressed to Farmers. By Dr. Julius A. Stöckhardt. Translated from the German and edited, with Notes, by Arthur Henfrey, F.R.S., F.L.S., etc. To which is added a paper on *Irrigating with Liquid Manure,* by J. J. Mechi, Esq. Henry G. Bohn. Price 5*s*.

This work on Agricultural Chemistry cannot be too strongly recommended to the attention and repeated perusal of English farmers. Its author is evidently well qualified to instruct his countrymen, the Germans, on the most essential of all human sciences or employments, and his book has been translated by a gentleman well known by his previous labours in this field to be quite competent to the task of rendering his author intelligible to the English reader. The English edition is made more valuable than the original by the copious notes which enrich it. Our agricultural readers—and we hope we have many of this class—will have a better idea of the value of the work from a brief notice of its contents than from any critical opinion of ours. The Lectures are twenty in all, and treat on the following subjects, viz. the nutrition of plants, their increase by manuring, various manures, guano, bone-dust, oilcake, malt-dust, salts, lime, marl, gypsum, farmyard manure, drainings of towns (sewage), etc.; also on the mode of converting mineral, vegetable, and animal refuse into manure, on soil, on impoverishing and enriching of soils, on water, air, light, heat, and other concomitants of vegetation. All these multifarious subjects are amply, plainly, and briefly discussed in these twenty Lectures.

While we thus conscientiously state that the work before us is well entitled to the highest meed of praise we can give, and that it is entitled to an unqualified commendation as a genuine practical work, we do not in every case coincide with the translator and annotator, or with his author; for example, in note to p. 73, if we understand Professor Way's report on the fertilizing effects of sewage, both the translator and the professor *throw cold water* on the scheme of rendering the drainage of towns profitable as a fertilizer. We think the statements of the value of the Watford, Rugby, and especially the Edinburgh, drainage, a sufficient proof that town sewage is available as a means of fertilizing the soil. Mr. Mechi's paper (we wish it were longer) appears to us to corroborate our view. Again, Dr. Stöckhardt appears to advocate the application of farmyard dung in the state of compost, *i. e.* thoroughly decomposed. In our younger days the farmers carried all their manure allotted for the turnip crop on the field, and allowed or caused it to ferment and decompose; but as they had always more land than dressing for it, they took recent droppings from the farmyard, litter and all, and used this for the last sowings. These last sowings, raised on recent, undecomposed littery dung, were the most productive in turnip generally, in barley (the succeeding crop) always. The following quotation from our author we especially urge upon the attention of our country friends (p. 74):—"*Drainings.* A farmer who does not carefully collect and preserve the urine of his house and live-stock acts like a miner who throws away dull, rich silver ore, because it does not shine like white silver. A farmer who buys guano, bone-dust, or other artificial manures, but who does not look carefully after his drainings, is an extravagant farmer, for he brings the same thing into his yard at great cost which he might have for nothing if he did not suffer it to flow or evaporate uselessly away from the same." We need not say that we cordially assent to this; we thank the Doctor for placing the subject so prominently and forcibly before us, and we hope it will be carefully read by the agriculturist.

BOTANICAL NOTES, NOTICES, AND QUERIES.

MONK'S-HOOD, *Aconitum Napellus.*—A melancholy, accidental, and fatal case of poisoning has but recently happened in Dingwall, Ross-shire, and has been published in all our newspapers: another sad example added to the many on record of the lamentable effects consequent on the very prevalent ignorance of common things. Surely it is high time that the schoolmaster were despatched on his mission of enlightening the masses with some knowledge of botany, a science which few know even by name, and scarcely one in a thousand can distinguish between a noxious and a salutiferous herb. In the recent sad occurrence all were alike ignorant, from the kitchen-boy to the master of the house, the provost of that ancient borough; the guests appear to have been as deficient in this useful knowledge as the domestics. It does not need great perspicacity to distinguish Horseradish from Monk's-hood: a very small portion of botanical science will be amply sufficient for this purpose; yet the absence of this little modicum of knowledge may be productive of tragical consequences.

Daphne Laureola.—There is a Latin proverb derived from the specific name of this pretty plant, viz. "Laureolam in mustaceo quærere," which means, "to seek praise for a pitiful performance." It is derived from the practice of the ancient Romans, who used a large, pale, flaccid leaf of a certain plant, somewhat like a Laurel, for baking under a cake called *mustaceum*, and hence the plant which supplied the leaves was called *Mustax*, as like a Laurel *as chalk is to cheese*, or a braggadocio to a hero.

Lotus, a Classical Proverb from.—"Lotum gustavit," he has tasted the Lotus, or, in other words, "He has licked the Blarney-stone." It is said of those who neglect their families and firesides for the sake of attractions elsewhere; also of those who have forgotten the distinction between truth and falsehood, between flattery and sincerity. ANTIQUUS.

The following is from Dr. Sandwith's 'History of the Siege and Fall of Kars:'—"The soldiers are grubbing up roots, and twenty of them are brought into the hospital, poisoned by eating the roots of *Hyoscyamus niger* (Henbane)." The poor famished soldiers were fain to eat herb-soup, and for this purpose, making the soup, collected roots, it appears, indiscriminately: the consequences were as above stated. This will remind the reader of Holy Scripture of the pottage that was seethed for the sons of the prophets. A youth like him of Dingwall went out and found wild gourds (the fruit of the *Cucumis prophetarum*, Linn.), and gathered his lapful; these were shorn and put into the pot, and a deadly mess was poured out. We hope the schoolmasters will become sufficiently qualified to be able to teach their pupils the difference between Hemlock and Hare's-parsley, etc.

Sir,—The following notice of the Sorb is from the 'Philosophical Transactions,' vol. xii. p. 978:—

"Extract of a letter from Mr. Edmund Pitt, alderman of Worcester, a very knowing botanist, concerning the *Sorbus pyriformis*:—'Last year I found a rarity growing wild in a forest in this county of Worcester. It is described by L'Obelius, under the name of *Sorbus pyriformis*, as also by Matthiolus upon *Dioscorides*, and by Bauhinus, under the name of *Sorbus procera;* and they agree, that in France, Germany, and Italy, they are commonly found; but neither these nor any of our own countrymen, as Gerarde, Parkinson, Johnson, or How, nor those learned authors, Merrett or Ray, have taken notice of its being a native of England: nor have any of our English writers so much as mentioned it, saving that Mr. Lyte, in his translation of 'Dodonæus,' describes it under the name of the *Sorb Apple;* but saith no more of the place but that it groweth in Dutchland. It resembles the *Ornus*, or Quicken-tree, etc. etc.,' as quoted by Plot.

"*Q.* Whether a verjuice made of this fruit, either ground with crabs or grapes, or, if plentiful, alone, would not, being kept for some time, prove one of the best acid-astringent sauces that nature affords?"

From Pliny, vol. iii. p. 314, Bohn's edition:—"There are four varieties of the Sorb; there being some that have all the roundness of the apple, while others are conical, like the pear, and a third sort are of an oval shape, like some of the apples: these last however are apt to be remarkably acid. The round kind is the best for fragrance and sweetness, the others having a vinous flavour; the finest however are those which have the stalk surrounded with tender leaves. A fourth kind is known by the name of 'torminalis'; it is only employed for remedial purposes. The tree is a good bearer, but does not resemble the latter kinds, the leaf being nearly that of the Plane-tree; the fruit too is particularly small. Cato, 'De Re Rustica,' cc. 7 and 145, speaks of Sorbs being preserved in boiled wine." *Qy.* Is the third sort mentioned above identical with our Sorb, *Pyrus domestica?* SENEX.

Will any correspondent inform "Antiquus" what plant is expressed by the West-country term *Ramains*, which occurs in the following salutiferous distich?—

> "Eat Leeks in Lide (March) and Ramains in May,
> All the year after physicians go play."

Ramsons

We have seen the following distich, which is somewhat similar to the above:—

> "Wad (would) they eat Nettles in March and Moggans (Mugwort) in May,
> Sae mony braw maidens wadna moul wi' the clay."

To the Editor of the 'Phytologist.'—Sir,—In Asser's 'Life of King Alfred' it is stated that the Box grew plentifully in a wood in his time. See 'Phytologist' for 1853, p. 873: "Berrocscire; quæ paga taliter vocatur a 'berroc,' sylva ubi buxus abundantissimè nascitur"—Berkshire, so called from *Birch-woods*, where the *Box* grows abundantly. I do not ask if the Box be a native of England, but beg to learn from some of your Berkshire correspondents if Birch-woods are common in Berkshire, as they were, according to the above account, in King Alfred's reign, and especially if the Box grows abundantly in Birch-woods, or anywhere else in Berkshire? SYLVANUS.

Mr. Editor,—On the 1st of December, in Kensington Gardens, I observed a thorn, called the Glastonbury Thorn, with several green leaves on it that had only been recently developed; it had no appearance of flower-buds. Will any correspondent in Somersetshire inform me, through the medium of the 'Phytologist,' if there be any descendants of this famous tree about Glastonbury, and also if these do now and then show a few flowers, or even leaves, at Christmas? VIATOR.

Will any of your correspondents favour me with a few notes on the localities, development, mode, and time of reproduction of *Batrachospermum moniliforme?* What are the recorded habitats of this beautiful *Alga* in England and Wales? Perhaps Mr. Leighton would be kind enough to say in what parts of Shropshire he has observed this plant. I have lately met with it in great abundance in a mill-stream at Elleston, near Newport, in this county. W. H.

Child's Ercall, Shropshire.

Specific Types, etc.—Can any of our correspondents tell us what is generally understood by the following phrases as applied to plants, viz. "typical species" or "specific types," "specific centres" or "types of distribution"? SPHINX.

Sir,—I can confirm the statement given in the December number of the 'Phytologist,' of the Misseltoe growing upon an *Oak* in the *neighbour-*

hood of Ledbury, having in my herbarium a specimen gathered in February, 1852, on an Oak-tree in Eastnor Park, near Malvern. It is particularized in the 'Botanical Looker-Out,' pp. 49–51, which enters with interest into the subject of the various trees on which Mr. Lees has noticed *Viscum album*. M. M. Atwood.

Mr. Editor,—Can any of your readers inform us when was that period so feelingly celebrated by the poet in the following lines:—

> "There was a time, ere England's griefs began,
> When every rood of ground maintained its man."

A writer in the 'Gardeners' Chronicle' hopes that this time will soon return, and that it will be realized by the enclosure and cultivation of such waste tracts as Woolmer Forest, Hindhead, etc. If he be serious, it would be desirable to ascertain if our best land was of so productive a nature in these *golden* days: our chronologists would oblige us by stating when this time was. Non-Œdipus.

Lichens.—Are not these plants more widely dispersed than those of a higher grade in the scale of vegetable objects? The minute and light character of their sporidia (reproductive matter) renders this highly probable. Omega.

Honey-dew.—Dr. Liebig says that certain diseases of trees, as the so-called honey-dew, are produced by the disproportion in the azotized and non-azotized matters which act as the food of plants. It would be worth while to put this to the test of experiment, and I believe the result would be in favour of it against the prevailing notion that honey-dew is derived from *Aphides.*—Quæstor. (*Gardeners' Chronicle.*)

Crimean Plants.—Dr. A. Douglas Maclagan exhibited specimens of plants received from the Crimea, among which were the following:—*Paronychia serpyllifolia*; *Convolvulus cantabricus*; *Salvia Horminum*; *Sideritis* sp.; *Onobrychis petræa*; *Lathyrus tuberosus*; *Helianthemum vulgare*; *Linum hirsutum*, L.; *Adonis æstivalis*, L.; *Myosotis* sp.—*Ibid.*

Amaryllis lutea.—This very pretty hardy bulb, which we have always considered an exclusively autumnal flowering species, has this year produced its flowers in the Nursery here, also in January and February, and now (February the 10th) are plants with several fully developed flowers upon them. Has this been noticed elsewhere? J. P.

Walthamstow, February 1856.

Communications have been received from

John H. Davies; Investigator; H. B.; F. Webb; John Tatham; Geo. B. Wollaston; W. H.; Sphinx; W. L. Notcutt; James Hussey; A. G. More; John Windsor, F.L.S.; W. Cheshire; Rev. W. Houghton; E. P. Wright; John Lloyd; W. G.; J. P.

All Communications, Books for Review, etc., for the Phytologist, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Fig. 14.

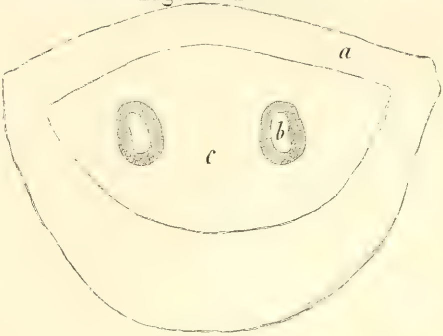


Fig. 15.

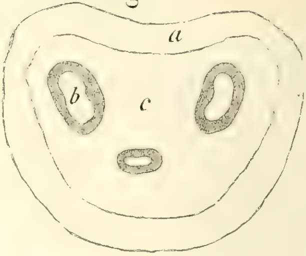


Fig. 11.

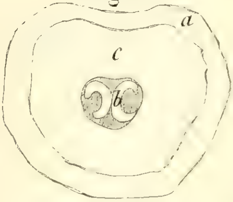


Fig. 7.

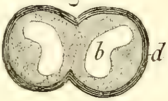


Fig. 6.

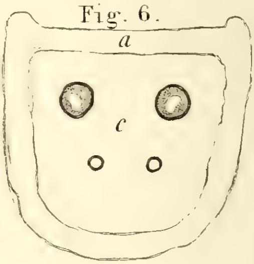


Fig. 16.

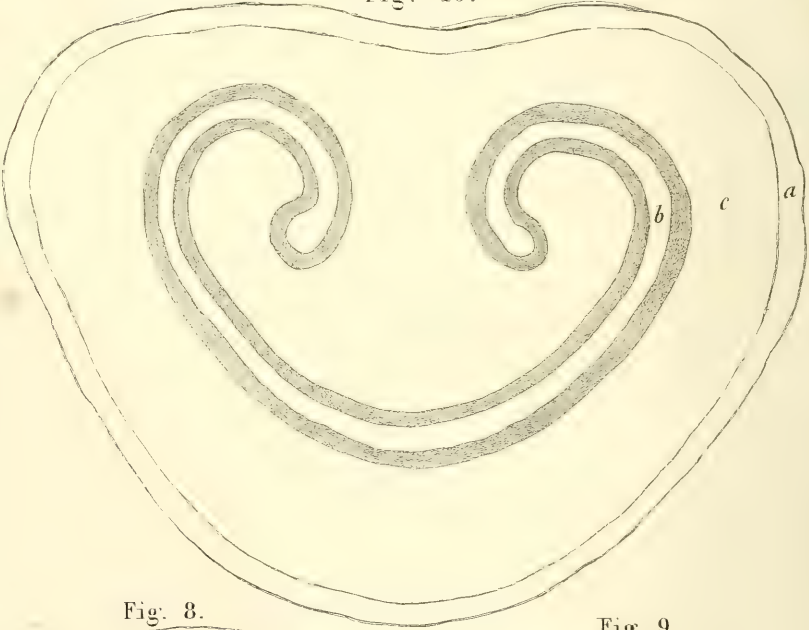


Fig. 8.

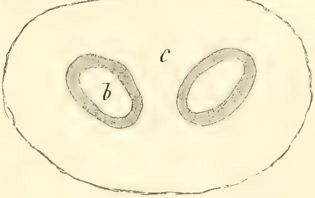
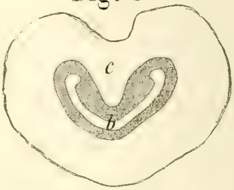


Fig. 9.



Some account of the Botany of Wyre Forest *and surrounding parts of the Country.* *By* George Jorden.

More than fifty years I have wandered in forest and field, over mountain and moor, in highways and byeways, in dingle and dell, among brakes and bogs in Wyre Forest and neighbourhood, in search of the treasures of Flora.

First in our interesting old hedges, which truthfully record the arboreal history of our primitive forests, in mutilated old stumps, which have weathered the blasts of more than a thousand winters, I find all the species, and some more, that now exist in the present Wyre Forest.

In a very old hedge, which borders one of our roads which was first cut out of the wilderness, I find several specimens of *Tilia parvifolia:* I must seek for you elsewhere before you make your claim as a native of our ancient forest. I wandered in woods, by hedgerows, and on the rocky heights on both banks of the river Severn, over an area of more than fifty square miles, in Worcestershire, Shropshire, and Staffordshire, where I find them plentifully dispersed, particularly in Astly and Shrawley Wood, an unreclaimed remnant of the Forest; here it covers a space of nearly two square miles, which was the nucleus of an extensive forest, where this species predominated, as the great number of very old pollards at this time testify; a great number have been destroyed within these last sixty years. Those old pollards read to us some very interesting records of the past, when nothing but wood was burned on the hearths of our ancestors, and nothing else was used for the smelting of iron, which was carried on extensively in this neighbourhood. The forests were destroyed, and the land cultivated. Great numbers of Lime, Oak, and Ash were left and pollarded; each species points out the domain of their ancestors,—the oaken pollards where the Oak predominated, the Ash but sparingly, the Tilias where they predominated; but the preference was given to them on account of their producing so much more wood than any others; they studded the fields very plentifully in the old hedges. Many of those old pollards, from medullary decay, are divided into several parts, in some instances into four or five; such is their tenacity of life, as to enable them to form again into distinct trees, leaving only remains of the sutures. This is not the case with the oaken pollards; a very large tree of *Tilia parvifolia* was blown down by a great hurricane, which happened in 1846, at Dowles; it measured in circumference, seven feet from the ground, seventeen feet seven inches, a perfectly healthy tree, with no signs of decay. Of the indigenous claim of this species there can be no doubt, nor, I believe, of *Tilia grandifolia,* which I find in my wanderings in our woods, hedges, and in ravines, its stratal adaptation is the old and new red sandstone. I find it in the oldest hedges, in woods, in a rude ravine, in which runs Gladder Brook; here, on its rocky banks, it is found occasionally for three or four miles mingling in friendly union with *Ulmus montana,* the one as truly indigenous here as the other, and dispersed in other places contiguous. Some very large old pollards have lately been cut down, one in Ribbesford Wood, a grotesque, shapeless mass, having vast protuberances, covered with branchlets, which is the case with this species: it measured in circumference nearly twenty feet. Another in Habberley Valley, a shapeless vegetable mass; its whole trunk hung in air as it were, for the rock, from the ravages of time, had disappeared from beneath; it was sustained by its massive roots, which spread in the soil above. This tree undoubtedly was self-planted more than a thousand years ago; it is found also in several places in this locality in old hedges. It is not to be supposed that those trees were ever planted over so extensive a locality, when the whole country was nothing else but a forest, when the object was only to destroy instead of plant. There may be some doubts of the indigenous claim of *Tilia europœa,* yet I find it in old hedges but sparingly. Those trees, in unfavourable seasons, do not perfect their seed; sometimes seedlings may be found. I have frequently raised them from seed.

Those noble trees must have much enhanced the arboreal grandeur of our primitive forest, particularly when in bloom, when the hymenopterous and dipterous and other tribes visit them in countless swarms, to sip, and sing their hymn of praise to Him who the rich banquet did provide.

The spade and plough have changed the aspects of nature: those scenes will never return.

I must visit our old hedges again: here I find *Pyrus torminalis;* it is plentifully dispersed over the whole of Wyre Forest, as also *Rhamnus Frangula, Populus tremula, Pyrus Aucuparia,* far-famed as an antidote and anti-charm against witchcraft, but when this cannot be readily obtained, *Ulmus montana* is used as a substitute, which undoubtedly answers quite as well. Here is also *Prunus spinosa, Rhamnus cathartica, Euonymus europæus, Pyrus Malus.* Here is the true native Crab, its leaves small, glabrous, as well as the shoots, and regular, small, round, green fruit, very different to that which is called the Crab-apple, the effect of culture; a hybrid.

Those hedges contain all the denizens of the ancient forest: Hazel, Hawthorn, Birch, Ash, Yew, Holly, Lesser Maple, Alder, Water Elder, Sallow; also the Oaks and Tilias, and all the contiguous forest-stuff. To finish the whole, the feathered tribes add their little assistance by sowing the seeds of the Rubi and Rosæ and Honeysuckle, to adorn it with their floral wreaths.

Quercus Robur and *Quercus intermedia* are two most distinct species, as proved by their stratal adaptations. It has caused me much wandering to establish their specific distinction. The strata which *Q. intermedia* almost exclusively occupies is of the carboniferous series,—a detritus poured into some lake or estuary which filled a long deep valley between the old and new red sandstone. This deposit has become crystallized into a kind of siliceous rock, no doubt in nature's chemical laboratory, the ocean, where great mysteries are slowly but effectually accomplished. This is a barren stratum, much of it not cultivable to advantage; but *Q. intermedia* flourisheth upon it. Its original area was more than a hundred square miles, and the whole of it was originally densely wooded with this Oak, nearly to the exclusion of *Q. Robur*, which occupied the surrounding strata, completely isolating *Q. intermedia.* The portion now densely wooded with it is about thirty square miles at this time; and where this Oak is now flourishing on the earth's surface the petrified remains of its congeners lie entombed beneath, most interesting memorials of the past. Those remains are identical with the rocks in which they are imbedded. How the inquiring mind may wonder and contemplate, yet cannot wander far into the mysterious past!

Q. intermedia may not to an unaccustomed eye be distinguished from *Q. Robur*, but the difference is great both in habit and structure: the fruit of the latter is upon long peduncles; leaves glabrous on both sides, more cuneate than ovate; petioles short, auriculed at their base; they also are of a darker green, retain their green colour longer in the autumn; when faded, a dull brown, bearing fruit in greater profusion; its stratal affinity is to the old or new red sandstone, or ferruginous clays.

Q. intermedia: fruit on a very short peduncle or sitting, often abortive; leaves cuneate-ovate, tapering to a long petiole, pubescent beneath, glabrous and shining above, particularly in the autumn; average a larger size than *Q. Robur,* more coriaceous; change in the autumn to a fine brown; it bears fruit, but sparingly. Sometimes a middling-aged tree will occasionally produce a plentiful crop. I have known some very old trees for more than fifty years which in the course of that time have borne but very little fruit. The timber is very durable, is fine-grained, and of a paler colour than *Q. Robur.*

The youthful Oaks wear their faded vest during the winter, until the young buds thrust it off; but when they become of age, robust, and strong, their biennial covering disdain, and cast it on the ground. I have often planted the fruit of both species: the young trees exactly follow their parents in every particular.

Now let us away to the sylvan shades to seek the floral gems; they all seem to greet me with a welcome smile.

First I find *Geranium sylvaticum* and *Aquilegia vulgaris* both plentifully dispersed over the woods, and so is *Convallaria majalis, Euphorbia amygdaloides, Serratula tinctoria, flor. alb., Solidago Virgaurea,* and *Teucrium Scorodonia* abundant, and also *Tormentilla officinalis, Vaccinium Myrtillus, Geranium sanguineum, Origanum vulgare;* those two plants are found in great profusion over a great extent of woodland on the Shropshire portion of Wyre Forest, on the left side of Dowlas Brook, where probably they have been inhabitants ever since it first became a forest; but on the other side of the brook I have not yet found a single specimen of either of the two plants in the same strata, but a different aspect,—the latter a northern, the other a southern. This shows the susceptibility of plants to meteorological influences, a subject which deserves more attention. *Daphne Laureola, Pyrus Aria,* sparingly; *Drosera rotundifolia, Epilobium angustifolium, Epipactis ensifolia,* occasionally abundant; in several localities *Epipactis palustris, Epipactis latifolia, Equisetum sylvaticum,* abundant, and also *Eriophorum pubescens, Gymnadenia conopsea.* Surely this *G. conopsea,* which grows in such profusion on the very spongy bogs, and nowhere else in Wyre Forest, must be physiologically different from a similar plant which is found in very dry pastures: that in the forest possesses a more powerful odour. *Equisetum hyemale, Gnaphalium sylvaticum, Habenaria albida* and *H. bifolia, Hieracium murorum, H. sylvaticum, H. umbellatum, H. boreale,* plentiful; *Achillea Ptarmica, Anagallis tenella, Artemisia Absinthium, Asperula odorata, Carex pendula, C. pilulifera, C. flava, C. pulicaris, C. muricata, C. pallescens, C. ovalis, C. remota, C. divulsa, C. sylvatica, C. strigosa, C. stellulata, Campanula patula, C. latifolia, C. Trachelium, Colchicum autumnale,* in the centre of the forest. Originally this plant might have been indigenous in any primitive forests, but, like many other plants which are undoubtedly natives, prefers the pastures; for instance, *Primula veris, Orchis Morio, Ranunculus bulbosus,* and several besides. *Orobanche major, Orobus tuberosus,* var. *tenuifolia,* plentiful; *Sanguisorba officinalis, Pyrola media* and *P. minor, Rosa tomentosa, R. spinosa, R. villosa.* The leaves of this species of *Rosa* dried and infused resembles the Chinese Tea more than any other British plant. *Scutellaria galericulata* and *S. minor, Lathræa Squamaria, Hypericum Androsæmum, H. humifusum, H. pulchrum, H. montanum, H. hirsutum, Mentha rubra, Gentiana campestris, Listera Nidus-Avis, L. ovata, Lycopodium clavatum, Menyanthes trifoliata, Lithospermum officinale, Fagus sylvatica, Castanea vulgaris, Aspidium Oreopteris, Melampyrum pratense,* very abundant in all our native woods. A pale yellow variety springs up with the other annually in several localities. *Melica nutans, M. uniflora, M. cærulea,* plentiful; *Neottia æstivalis,* one specimen only has yet been found; *N. spiralis, Paris quadrifolia, Ophioglossum vulgatum, Pedicularis palustris, P. sylvatica, Thalictrum minus, T. flavum, Triglochin palustre, Valeriana dioica, V. officinalis, Vicia sylvatica, Vinca minor, Scirpus setaceus, Tilia parvifolia,* found on the banks of Dowles Brook, in the centre of Wyre Forest, for a distance of more than three miles; *Potamogeton plantagineus, Rubus saxatilis,* in several localities.

Wyre Forest and its precincts are very rich in the number of the *Rubi* species; but such is the botanical discrepancy in their diagnostics, that it is very difficult to recognize but very few of their species. I only know them by their physiognomy, as a shepherd knows his flock. After observing them for some time I find specification is a fallacy in such a numerous and nearly allied tribe of plants. Those habits and appearances which are evident to the eye, but which language cannot readily describe, are the best means of identification. By observing their habits and different phases during the whole year, I can recognize many distinct species. About twenty of them I have raised from seed (each truly follows the parent plant), and some more I have got in embryo. Botanists have invested, but have not yet had courage to storm, the thorny fortress; therefore its treasures are still unrevealed behind the *chevaux-de-frise.*

(*To be continued.*)

Economical Applications of British Lichens. By W. Lauder Lindsay, M.D., Perth.

From very early ages and in many parts of the world Lichens have been used to a considerable extent:—

I. In several of the arts; *e.g.* dyeing, calico printing, weaving, paper, parchment, and pasteboard making, perfumery, brewing, and tanning.

II. As food alike to man and the lower animals in Arctic and northern regions; and

III. In medicine, as substitutes for various expensive nutrients, demulcents, tonics, antiperiodics, or astringents.

In some of these forms they have been of no insignificant importance, directly as well as indirectly, to man. These uses or applications to the necessities or comforts of man have been founded on their capability of yielding the following products, or on their possessing the following substances, viz.:—

I. *Colorific Substances.*

a. Colorific principles, such as *Orsellic, Erythric, Lecanoric, Gyrophoric*, or *Everine* acids, capable of yielding, by the joint action of atmospheric air, water, and ammonia, a *red* or *purple* colouring matter, of which Orchill, Cudbear, and Litmus are merely varieties depending upon the mode of manufacture. This is the *rationale* of the production of the "Orchill" of England, "Cudbear" of Scotland, "Litmus" of Holland, "Orseille d'Auvergne" of France, "Bœttelet" of Sweden, "Korkalett" of Shetland, some of the "Crottles" of the Scotch, Irish, and Welsh peasantry, and similar native dyes in our own and other countries.

b. Yellow and *brown* colouring matter, such as *Chrysophanic* and *Vulpinic* acids, which exist ready formed in the cells of the cortical layer of the Lichen-thallus, and are readily yielded to boiling water or to alcohol. Many of these have been, or are, applied in some parts of the Scotch Highlands, in Ireland, Wales, Scandinavia, America, and other countries, to the dyeing of yarn and home-made fabrics; one of them, Chrysophanic acid, has been recently proposed as a test for alkalies.

II. *Nutritive Substances.*

a. Amylaceous matters, such as *Lichenin* and *Inulin,* which are essentially modifications of common starch. Hence the use of many species as food for man and as fodder for domestic and wild animals in northern or Arctic countries; *e.g. Cetraria Islandica* ("Iceland Moss") by the Icelanders, the *Umbilicarias* ("Tripe de Roche") by the Canadian hunter or Arctic voyager, *Cladonia rangiferina* ("Reindeer Moss") by the reindeer, and probably *Lecanora esculenta* ("Manna") by the nomade tribes of the steppes of Tartary.

III. *Medicinal Substances.*

a. Gummy and *mucilaginous matters.* Hence the use of *Cetraria Islandica, Sticta pulmonaria, Roccella tinctoria,* and other species in medicine as emollients, demulcents, and expectorants, and of the gum of *Physcia prunastri, Ramalina fraxinea, Usnea barbata,* and others, as a substitute for gum-arabic and similar substances in calico printing, weaving, paper, parchment, and pasteboard making, etc.

b. Bitter or *astringent matters,* such as *Cetraric* and *Gallic* acids, *Picro-lichenine, Stictine,* etc. Hence the (reputed?) *astringent* qualities of *Physcia prunastri* and *furfuracea, Cetraria Islandica* and *Sticta pulmonaria;* the two latter of which have been used in the arts (in tanning) and in medicine (as tonics); the supposed *antiperiodic* or *febrifuge* virtues of *Parmelia parietina* and *Physcia furfuracea,* and the *purgative* properties of *Cetraria Islandica* and several of the *Umbilicarieæ.*

c. Various *Salts,* and especially Oxalate of Lime. Hence the use in France of variolarioid forms of *Pertusaria communis* (genus *Variolaria* of older authors) as a source of Oxalic acid.

But notwithstanding the possession of such properties and the importance of such economical applications, the Lichens have always been, and, to a certain extent, still continue, a somewhat neglected, and, by many, a despised race; while the sister families of the *Crpytogamia* have had abundant investigators and illustrators. The delicate green wavy Fern is carefully tended in Wardian cases in the drawing-rooms of the rich; the beautiful red frond of the Rhodospermous Seaweed finds a proud place beside the choicest productions of art in the lady's album; the humble Moss has formed the theme of many a poet; and even the Fungus has recently had classic words devoted to the description of its structure or uses; but the puny Lichen, which grows *everywhere* below and around us in unlimited profusion, remains almost unstudied and unknown, its very existence as it were ignored.

Our chief grounds for recommending the study of Lichenology to the consideration of the observances of nature's phenomena are—

1. The easy accessibility of the objects of study; and

2. The inexpensive nature of the study itself from the simplicity, or, it might almost be said, non-necessity of apparatus for observing, collecting, and preserving.

The Lichenologist is not compelled to make expensive or dangerous excursions to foreign shores: *his* field of investigation surrounds his home wherever that may be; it is alike productive and of easy access. From our sea-coasts to the pinnacles of our loftiest mountains Lichens abound *everywhere;* so common indeed and so familiar are they, that the very idea of examining or collecting "time-stains" from our rocks, walls, or trees will by many be ridiculed as frivolous and absurd. Nor is there a necessity for complex instruments or apparatus. A few pill-boxes, an old knife, a simple pocket lens (and, if possible, also a microscope) for examining, and some paper, cardboard, and gum or glue for preserving, constitute his whole armamentarium.

Let it not be supposed however that the investigation of species is correspondingly simple or easy. No plants present a greater variety in external form, dependent on slight changes in external circumstances: the same species frequently exhibits an infinitude of varieties or phases, whose true value can only be recognized or determined by the careful observer. In order to arrive at a precise knowledge of species and genera, and thereby of the generalities of classification, the Lichenological student must therefore examine species in all their various states or conditions,—a work of no little difficulty or discrimination. This difficulty is the source doubtless of the present unsatisfactory condition of Lichenology; it is mainly due to the paucity of labourers in a field where multiplied observation is of paramount importance. While however the study of so protean a group is an *individual* labour of forbidding difficulty, it becomes greatly facilitated by the division or diffusion of the labour, by the collection and collation of specimens from different habitats in various parts of the world or of the same country or district. It is in this form chiefly that we would recommend the subject to the attention not only of professed naturalists, but of tourists and travellers, as furnishing to them a profitable, as well as a pleasing, pursuit in their wanderings, as presenting to them an opportunity of contributing towards the elucidation of a hitherto neglected branch of the natural history of the Cryptogamia, towards the gradual filling up of a still conspicuous gap in our British Botany. Moreover perhaps the study of no other group of plants is so well calculated to lead to the cultivation of habits of accurate observation and patient research, than the acquisition of which nothing is more important, not only to the observer in natural history, but to the educated of all classes of our community.

On the Impregnation of Vaucheria sessilis, *DC. By*

W. A. LEIGHTON.

Analogous reasoning has long led Botanists to infer the existence of sexuality throughout the whole vegetable kingdom. This, and the process of impregnation throughout all its stages, have been clearly observed in flowering plants. In cryptogamic plants however this phenomenon has not been seen, although the existence of distinct organs, which have been conjectured to represent respectively the male and female organs of impregnation, has been long ascertained. These organs have been found to exist in Ferns, Mosses, Characeæ, Lichens, and some other tribes. For the Characeæ it may be sufficient to refer to the plates of Mr. Varley, in the 'Transactions of the Microscopical Society of London,' vol. ii.; and for the Lichens, to the valuable Memoir on Lichens by M. Tulasne, in 'Annales des Sciences Naturelles,' third series, vol. xvii., and the exquisite and inimitable plates illustrating the same. Nevertheless it has been reserved for the research of M. Pringsheim, of the Royal Academy of Berlin, to ascertain the true relation of these organs to each other, and to witness the singular and wonderful process of impregnation. His Memoir on the Impregnation and Germination of Algæ is published in the Reports of the Berlin Academy, and an abridgment is included in No. 13 of Lankester and Busk's 'Quarterly Journal of Microscopical Science,' illustrated by a beautifully engraved plate of coloured figures.

The plant in which M. Pringsheim witnessed this phenomenon was *Vaucheria sessilis*, DC., a British plant, which has been found in autumn and early spring, forming broad green patches or floating masses on the surface of pools and ditches in Sussex, by Mr. Borrer. A representation of this plant, from specimens communicated by Mr. Borrer, will be found in tab. 1765 of 'English Botany.' In the genus *Vaucheria* the female organs consist of ovate or rounded vesicles, sessile on the filamentary frond, either singly or in pairs, near to or between which arises a slender subulate process, curved at the summit like a horn or crook, which represents the male organ. These are well figured in the plate above referred to; and similar representations of the same organ in other species of the genus will be found in Greville's 'Algæ Britannicæ,' tab. 19, and Berkeley's 'Algæ,' tab. 9, and 'English Botany,' tab. 1766, and in plates 2 and 3 of Vaucher's 'Histoire des Conferves.' In an early stage both the male and female organs were continuous with the parent filament; but at a certain period both became isolated by the development of a septum at the base of the female organ, or sporangium, and about midway up the hornlike process, or antheridium. Every part of the plant is similarly filled with elongated chlorophyll granules, imbedded in an albuminous plasma and rounded oil-globules, which together constituted a dense internal lining of the filament, between which however and the true cellulose membrane is developed a thin, colourless layer, designated "cutaneous layer." The sporangium now protrudes—a rostrate elongation on the side next the hornlet, in which a considerable accumulation of the cutaneous layer is gradually formed, until it becomes perfectly stuffed. At the same time the apex of the hornlet becomes colourless, and a separate and distinct cell formed therein, containing minute, colourless, rodlike bodies imbedded in mucus, amongst which an indistinct movement may be perceived. The sporangium is now ruptured at the rostrate point by the pressure of the accumulated cutaneous layer, and a portion of that substance, in the form of a drop of mucus, emitted. Simultaneously the apex of the hornlet opens, and innumerable excessively minute rodlike corpuscles, about 1-180‴ in size, issue forth, and enter the sporangium by continuous struggles in an uninterrupted succession of assaults and retreats for the space of more than half an hour. These corpuscles appear to be precisely similar both in form and movements to the so-called *sporidia* of the *Pyrenotheæ,* as represented in plates 28 and 29 of Leighton's Brit. Angiocarpous Lichens. This supposed genus of Lichens, *Pyrenothea,* is now universally admitted to constitute the spermogonia, or male organs, of Lichens: as, for instance, *Pyrenothea leucocephala,* Fries; of *Lecidea abietina,* Ach.; *Pyrenothea vermicellifera,* Kunz; of *Biatora luteola,* Fries. Examples of these several plants will be found in Leighton's 'Lichenes Britannici Exsiccati,' Nos. 163, 164, 102, and 90. M. Pringsheim does not state whether, like the spermatia of Lichens, these corpuscles of *Vaucheria sessilis* are supported on articulated pedicels, or whether they are free; but as mention is made of a mass of mucus remaining in the cell at the apex of the hornlet, it is probable that they are so. (See the fig. in Tulasne's Mem. *passim.*) The corpuscles which have not entered the sporangium, but in which motion has ceased, exhibit two cilia of unequal length. These appendages, so far as I am aware, have not been detected in the spermatia of Lichens.

After impregnation thus effected, a laminated membrane is formed around the entire contents of the sporangium, which thus becomes developed into an independent embryonic or spore-cell. This cell becomes gradually colourless, with the exception of one or more dark brown spots, and is detached by the decay of the membrane of the sporangium. After about three months it suddenly reassumes its green colour, and germinates into a young *Vaucheria,* exactly resembling the parent plant.

It is due to the memory of the amiable and philosophic Vaucher, who first noticed these organs in the *Vaucheriæ,* to state that he declares his conviction of the hornlets being the anthers of the plants.

This notice of a most interesting discovery is brought before the readers of the 'Phytologist' with the hope of exciting some of them to undertake similar investigations, with the view of discovering the co-operation of these respective organs in the act of impregnation, more especially in the Lichens. Nature often reveals her secret operations when least expected, to the persevering student.

On some Uncommon Plants observed at and near to Tunbridge Wells, Kent, *in* 1855.

A short residence at Tunbridge Wells during the past summer afforded the opportunity of collecting a few scattered observations on the Botany of the neighbourhood; and while no doubt several of the species here mentioned will appear as so many additions to the last-published Flora of the place, still the writer does not wish to claim as his own discovery any part of them which may have been noticed by others during the long interval which has elapsed since the date of Jenner's Flora (1846), especially when it is recollected how many other Botanists must have been among the visitors to this well-known watering-place.

It is perhaps to be regretted that the district selected by the author of the 'Tunbridge Wells Flora' should have been so extensive and artificial; some indeed might think that in any case a radius of ten miles would give a Botanist as large a surface of ground as could be thoroughly explored; but what I more particularly wish to protest against in this instance is, that the chalk hills, at the distance of eleven or twelve miles, should have been included. This appears to have led to two unfortunate results: first, because in consulting the book we expect to find a complete account of the Flora of the chalk, which however can hardly be the case so long as such species are omitted as *Fedia Auricula,* the three *Fumarias, F. micrantha, F. parviflora,* and *F. Vaillantii, Anemone Pulsatilla, Cineraria campestris, Astragalus hypoglottis,* *Thesium*, etc., most of which probably occur in one of our richest botanical provinces. A second disadvantage arises from the author having indicated in too general a manner the localities of certain plants, which, although they be frequent enough upon the chalk, are by no means equally dispersed throughout the district. I allude to *Linaria spuria, Plantago media, Verbascum nigrum*, and some others. Then again, the chalk plants once admitted, it has no doubt been found difficult to determine a limit, and so a further point has been stretched to accommodate apparently a few of our rarest species (*e.g.* some of the well-known Cuxton plants) which have not yet found place in any separate Flora; and this, I believe, illustrates the danger of extending the boundaries for the sake of adding to a list a few scarce plants at the risk of leaving the larger district less perfectly explored in proportion to its size. For my own part, while I gladly acknowledge the great assistance which as a stranger I derived from a local Flora, still I cannot help thinking how much more interesting and satisfactory would be a complete and accurate account of the Botany of the "Sand" round Tunbridge Wells, or even of the whole "Weald," either of which would offer a most natural and well-marked field of observation.

In order to preserve the same sequence as was followed in the Flora, it has been thought best to distinguish the species of the following list by three separate letters, indicating respectively—A. Additions to the published Flora; B. Those plants for which localities have been found nearer to Tunbridge Wells; C. Old localities given doubtfully with brackets or asterisks in Jenner's Flora, but which have been verified this season.

A. *Veronica scutellata, β, parmularia.* Camden Park, in company with the ordinary form.

A. *Veronica Buxbaumii.* In a hop-garden at Tunbridge, plentifully.

A. *Glyceria plicata, β, pedicellata.* Broomhill.

B. *Poa compressa.* Roadside near Riverhead; also in greater quantity by the road across Morant's-court Hill. This grass appears to be attached to a calcareous soil.

C. *Festuca elatior.* Hedge-bank in Brightridge lane.

A. *Bromus commutatus.* Riverhead, etc.

B. *Bromus secalinus.* Amongst barley, by the windmill near Fisher's Castle.

B. *Lolium temulentum, β, arvense.* In corn near Hurst Wood; also with the preceding grass near Fisher's Castle.

Are not *Alopecurus fulvus* and *Leerzia oryzoides* likely to occur?

Centunculus minimus. Fisher's Common.

A. *Potamogeton rufescens.* Bayham. Tunbridge, in the marsh ditches; often without floating leaves.

A. *Sagina ciliata.* On the common at Tunbridge Wells.

C. *Lithospermum officinale.* Morant's-court Hill.

A. *Anagallis arvensis, β, cærulea.* Morant's-court Hill.

Vinca minor. Hedge-bank on the Hastings road; apparently truly wild.

Viola lactea, Smith. On the common at Tunbridge Wells; abundantly.

Ribes nigrum. Profusely along the rivulet that crosses the road on the way to Bell's-Ewe Green; apparently wild, though it is possible the seeds may have been derived originally from a cottage near to, but whose garden does not however abut on, the stream.

Pimpinella magna. Scattered for a mile on the hedge-banks along the road over Riverhill.

C. *Œnanthe Phellandrium.* In the marsh ditches close above the town of Tunbridge, in some plenty.

Linum angustifolium. Broomhill; sparingly.

A. *Luzula Borreri,* Bromf. In some quantity near the pond at Camden Park, along with *L. Forsteri* and *L. pilosa.*

Luzula campestris, var. A tall slender form of this occurred in a shady hedge-bank; it was fully as high as *L. multiflora,* and much resembled it, except in the seeds and in its flaccid, drooping habit.

B. *Chlora perfoliata.* On a part of Frant Forest, near the railway. I am quite at a loss to account for the presence of this limestone plant in such a locality.

A. *Polygonum mite.* A single plant below Fisher's Castle, growing amid a quantity of *P. Persicaria.*

Sedum Telephium, and not *S. purpureum.* In several places.

A. *Agrimonia odorata.* Sparingly on the sunny side of a hedge a little south of Rusthall Common.

A. *Rosa Sabini.* A few bushes on the common at Southborough.

Fragaria vesca, var. A plant much taller than usual, and with a large panicle; stem-leaf ternate; hairs of the pedicels spreading, and the under side of its leaves paler. Occurred sparingly on hedge-banks near Southborough and Broomhill.

Tormentilla. The hybrid (*T. mixta*, Nolte) was very common.

c. *Ranunculus circinatus.* In a ditch a short way above Tunbridge.

A. *Ranunculus cœnosus.* Near Camden Park, etc.

Ranunculus hirsutus. Among vetches on the way to the High Rocks.

B. *Mentha sylvestris* was gathered, in company with a friend, close to the bridge at Riverhead.

c. *Mentha sativa* (*acutifolia* of Smith?). By the river Medway, along a ditch close to Tunbridge.

A. *Thymus Chamædrys.* Near Rusthall Common.

B. *Calamintha officinalis.* On a hedge-bank near the church at Speldhurst; but we could find no trace of *C. Nepeta* there.

B. *Clinopodium vulgare.* Broomhill. Edge of Hurst Wood. Common along the Hastings road. By no means confined to the chalk.

A. *Euphrasia gracilis.* On Frant Forest, and better marked on Morant's-court Hill.

Geranium columbinum. In Powdermill lane. Not seen elsewhere.

Reviews.

Notes on Books: being an Analysis of the Works published during each Quarter by Messrs. LONGMAN & Co. No. III.

From this publication, which is exclusively confined to works published by this eminent firm, all laudatory notices are excluded; there is merely an analysis of the contents of each treatise, unaccompanied with critical opinions. In the present number there is a notice of Hooker and Arnott's 'British Flora,' which has now reached its seventh edition. This fact is a sufficient proof of the estimation in which this work is held by the botanical public. We hail its reappearance in this new edition as a sufficient proof that the readers or the students of such works are rapidly increasing. It is a maxim in commerce or political science, that demand and supply are related, as cause and effect are combined in philosophy. During the first quarter of this century only one or two works on botany appeared, and these, notwithstanding their great merit and the scarcity of such books, never reached a second edition. During the last twenty-five years we have had at least twice as many original works on the British Plants, and these have been frequently reprinted. This is conclusive evidence that the science of botany is exciting more attention than it did at the beginning of the present century.

Catalogue of the Vasculares, or Phænogamous Plants, of Great Britain, arranged according to the Natural System; with the Synonyms of De Candolle, Smith, Hooker, Reichenbach, *and* Lindley: with an Index. Wm. Pamplin: London.

This is a very useful catalogue for reference and for arrangement of specimens; and, though not intended to supersede the catalogue published with the sanction of the Botanical Society of London, it is in some respects more useful than the Society's popular enumeration. It contains many synonyms and most of the varieties, and has an alphabetical index to the orders and genera. Another distinguishing feature of this list is its cheapness. For the price, see advertisement on the cover of our present number. We notice *Siylbum* for *Silybum,* and we are unable to find *Senecio Jacobæa* and *Carex incurva.* The plan is better than the execution.

The Home Companion: a Monthly and Weekly Journal of Instruction and Amusement. October. Published by W. S. Orr & Co.

This popular and instructive periodical for last October contains an article on the preparation and arrangement of a *Hortus Siccus* (which means a collection of dried plants), a term now nearly, if not quite, obsolete among botanists. It is a matter of small import whether such a collection be called a *herbarium* or a *hortus siccus,* but that such an article should appear in a popular miscellany is significant; it is a proof that botany is advancing, or at least it is a proof that plants are becoming objects worth collecting and mounting, not merely for scientific purposes, but as ornamental objects.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Notes Phytological (*Welsh Plants*), *August* 1855.

Retrospective.—*Clematis Vitalba.*—Near Llansillin, D.; again, near the entrance of Llan Rhaydr, D.; again, climbing over the hedge and stone-wall boundary of a field near to a cottage garden north of the bridge by the Bala road, not quite a quarter of a mile from Dolgelly,—that is, thrice in addition to former notices of this plant in 1854, etc. *Quære:* If the seeds ripen here sufficiently for germinating? if so, whether truly native or not, that fact, if established, would help to account for its rare occurrence, for I do not remember to have even once seen it as a cultivated or garden plant.

Spiræa salicifolia.—There have been numerous opportunities of observing this plant, and I find that it occurs in garden-hedges near cottages, and in hedge-banks in sequestered localities, indifferently; for instance, far from any dwelling as you descend the mountain-range, after having passed the highest ground—say about midway between Bala and Dolgelly—and there for a considerable distance and in some abundance. Also there is a good quantity of it in hedge-banks of the old road, supposed to be an ancient British or Roman way, between the Maentwrog road, near its junction at the Mill-pond, where Ffestiniog and Maentwrog and Trawsfynydd roads all three unite. Now from about 100 or 150 yards nearer to Trawsfynydd than this point, there is a very curious rough and ancient road runs nearly due east, and passes within less than a quarter of a mile of the Tommen-y-Mur (I believe it is an old crossway leading to Bala); well, on the left-hand side before you reach the spot where the camp is, and where the Sarn Helen crosses this rough way, I saw a sort of hedge-bank overgrown with the *Spiræa salicifolia* for some distance, and perfectly wild. *Quære:* Can the plant be in any way connected with those antiquities, which prove this neighbourhood to have formed a station of some importance at an early period?

Verbascum Lychnitis (not a *single* plant merely) occurred in the churchyard of Llanfachreth, Merionethshire. There was nothing to induce one to suppose that this *Verbascum* had been introduced.

There is a very pretty *pure white*-flowered variety of *Prunella vulgaris* in some abundance in the meadow through which there is a public footpath, and which leads from Llansillin church to the great house called Glas Coed. The same meadow produces also abundance of the *Genista tinctoria*, a plant which has not come under my observation much elsewhere.

On the wall of a farmyard, before you enter Llansillin, I observed that same sort of neat-growing *Cistopteris* which grows, or did grow, on a wall at Albury, in Surrey. Gathered one or two nice fronds of it; but alas! they have gone astray somehow.

Cader Idris produces, so far as I could see, few plants, but magnificent patches of *Lycopodium clavatum* and *alpinum; Selago* also, most beautiful large specimens. There were some specimens which carried with them a resemblance to *annotinum.*

Mentha piperita I noticed in other places besides that spot near Dinas, where we last year saw it, particularly lower down the same stream, still nearer to Dinas.

Vicia Orobus.—One of the greatest ornaments to the banks and borders of fields that Merionethshire produces, particularly abundant all along from Llaneltydd to Trawsfynydd and Ffestiniog, and by the old road, particularly towards Tommen-y-Mur. This year I noticed that the seeds had ripened in great plenty. Also,

Orobus tuberosus was still even (August 25) in bloom, as well as abundantly in fruit; also we saw plenty of the narrow-leaved variety of it, viz. var. *tenuifolius*, almost as plenty as the ordinary one near Ty'-ny-Groes.

Scolopendrium vulgare is rare in North Wales; we only saw it in one spot near Dolgelly.

Polypodium Dryopteris was in great plenty as you cross the Berwyns between Llangynog and Bala; at the same place also was abundance of the *Cryptogramma crispa.*

Cuscuta Trifolii (Bab.).—This plant appears to be spreading very much in Warwickshire and the surrounding counties, as the underwritten list of localities in which I have found it during the years 1854–5 will show. On the 24th of July, 1854, the Warwickshire Naturalists' Field Club held their first meeting at Wilmcote, and the Clover Dodder was one of their discoveries; it was found in a field at Red Hill, between Stratford and Alcester. On the 24th I went to see it, and discovered another field with plenty of *Cuscuta* at Miles' Bush, two miles from Stratford; on August 8, another field at Luddington; August 13, at Grafton; September 9, at Oak Farm, near Stratford-on-Avon; September 24, at Crunhill Leys, near Bidford; September 30, three miles from Stratford, on the Warwick road, on clover planted this year (where it lived through the winter, and observed it in the field until September 30, 1855). On the 10th of September I visited the Red Hill locality, and found that it had spread entirely over the field, all but completely destroying the Clover, and had seized upon other plants growing near it,—as Thistles (*Cnicus arvensis*), which were beautifully covered by the plant; on Coltsfoot (*Tussilago Farfara*) it was growing on each side of the leaf as well as on the leaf-stalk; *Daucus Carota*, and *Calamintha Acinos* (Clairv.); on all which plants it was *growing*, not *supported* only by the plant. I did not find perfect seeds until October 10, when at the same place again. In 1855 I met with it at Low Honeybourne, Gloucestershire, on the 27th of August; at Churchill, Alderminster, Worcestershire, September 2; between Badsey and Littleton, Worcestershire, September 9; and in another field on the Warwick road, near Stratford-on-Avon, September 20. Has it ever been noticed to do more damage on any particular soil over others? It is my impression, from what I have seen of it, that it spreads much more on the lias limestone we have about here than on the old red clay, etc. I have not found it on light or sandy soils at all.

Agrimonia odorata (Ait.) I discovered last year, at the edge of a wood near Stratford, called Snitterfield Bushes.

Caucalis daucoides I also re-found last year in one of the localities mentioned by Purton, "in a field near Drayton Bushes," from which it has been absent many years. W. CHESHIRE.

Asplenium fontanum, Bern.—In the remarks on the claims of *Asplenium fontanum* to a place in the British Flora ('Phytologist,' p. 221), no notice is taken of Mr. Hutcheson's Scotch locality for the plant, which I pointed out as long ago as 1848 (see 'Phytologist,' vol. iii. p. 319). Now this, I think, is hardly fair dealing towards the Fern. I take the liberty therefore to repeat, that Mr. Hutcheson informed me he had met with the plant in considerable abundance on "shaded rocks by the sea, two miles north-east of Stonehaven, Kincardineshire, in 1842." I have only to remark further, that Mr. H. could be under no mistake as to the *species*, for he showed me a veritable living plant of *A. fontanum* in the garden at Boxley Abbey, which indeed led to the information which he gave me on the subject, and which he assured me he had received from a friend in Scotland who had gathered it in the above locality, where he had himself previously found it, as already stated. I am the more anxious to repeat this statement, in the hope that it may lead some botanist or tourist who may have the opportunity to examine the locality and confirm the accuracy of Mr. H.'s information, and thus establish, by additional evidence, the claims of this elegant Fern to a place in our native Flora. W. T. Bree.

Allesley Rectory, January 9, 1856.

[We were aware that this Fern had been reported from several other parts of Britain besides those mentioned in a communication on the subject in page 221 of the New Series of the 'Phytologist.' We omitted the Stonehaven locality because we are informed by Mr. Moore, in his 'Handbook of British Ferns,' p. 152, that that particular locality no longer exists. Mr. Moore says, "On rocks near Stonehaven, in a spot since destroyed by the construction of a railway." For similar reasons another locality is omitted. The claim of the Fern to a place among British plants has been clearly established on the authority of genuine examples submitted to competent authorities.]

Misseltoe on the Oak. (From Loudon's 'Arboretum.')—"The Misseltoe of the Oak is so intimately connected with all the traditions of the Druids that we cannot doubt the fact of its having been actually found by them, especially as we are told that its being found by them was so rare an occurrence as to be attended by rejoicing. . . . After numerous inquiries on this subject, we succeeded in March, 1837, in learning from Mr. D. Beaton, gardener at Hatfield, near Ledbury, that Mr. Pitt, a small farmer in that neighbourhood, recollected seeing it on an Oak-tree near Ledbury, adjoining to which was a Willow-tree loaded with Misseltoe, from which the Oak was supposed to have been supplied: this Oak was cut down in 1831. Through the kindness of Mr. Moss, gardener to Earl Somers at Eastnor Castle, Mr. Beaton received an account of an Oak near the castle on which there are several plants of Misseltoe, one of which is of great age, and its branches occupy a space nearly five feet in diameter. The Misseltoe on the Oak grows with greater vigour and has broader leaves than that which grows on the Apple-tree, and the stem does not form that swelling at its junction with the Oak that it does on most other trees. Of these facts we had ocular demonstration from a large and handsome specimen growing from an Oak-branch sent to us in March, 1837, by Mr. Beaton, and which (that the fact of the Misseltoe growing on the Oak might be no longer doubted by botanists and gardeners) we exhibited on April the 4th, 1837, at the meetings of the Horticultural Society and of the Linnæan Society, held on that day (see 'Gardeners' Mag., vol. xiii. p. 206). Subsequently Mr. Brackenridge, a Scotch gardener, just returned from Berlin, has informed us that he saw the Misseltoe on several Oak-trees in the Duchy of Posen, about eleven miles on the south side of the town of Posen, near to an old cloister the property of Mr. Ebers, to whom Mr. Brackenridge was for a short time gardener. *Loranthus europæus*, a parasite closely resembling the *Viscum album*, is frequently found on the Oak in the neighbourhood of Vienna, and is supposed by some to be the Misseltoe of the Druids." SENEX.

Misseltoe.—In Leighton's 'Flora of Shropshire,' p. 491, habitats are given for this plant on the Hawthorn, Hazel, American Poplar, *Pyrus Aucuparia*, Larch, Crab, Apple, and Pear. It is also stated that the late Mr. Dovaston caused the seeds to germinate on the Oak, several Pines, Cherry, Laurel, Portugal Laurel, Holly, Lime, Elms, Hornbeam, Birch, Sycamore, Ash, Chesnut, Hazel, Acacia, Crab, Apple, Hawthorn, and Pear. Mr. Dovaston mentions in his "Chit-chat," published some years ago in 'Loudon's Magazine,' that he had himself seen the Misseltoe growing on the Oak in Anglesea. W. A. L.

Addendum to Mr. Leighton's Note, on Lecanora rubra.—Through the liberality of Mr. W. Mudd I shall be able to include specimens of this rare British Lichen in the forthcoming 7th fasciculus of my '*Lichenes Britannici Exsiccati*,' from the Yorkshire locality.

Misseltoe.—Mr. Editor,—Will you inform *A Juvenile* how the name of this plant ought to be spelt? There are some considerable variations in its orthography. Hooker spells it as above; Babington has *Mistletoe:* this is the orthography adopted by Loudon in his 'Arboretum.' Balfour (see 'Manual') adopts *Misleto;* Montague, in his Dictionary, has *Misseltoe.*

Pyrus domestica, Sm.—Allow me to make two or three remarks on the very interesting article about the Service-tree in Wyre Forest, in the January number of the 'Phytologist.' After reading Gerarde's chapter "Of the Service-tree," I am inclined to think that he means *P. torminalis* only, when he writes—"These trees are found in woods and groves in most places of England .... In Kent IT groweth in great abundance." Had *P. domestica* abounded when Gerarde wrote his 'Herbal,' it would hardly have disappeared when Johnson published his edition of that work, or when Parkinson composed his 'Theatre of Plants.' It is due to Hudson to remark, that he prefixes an asterisk to his description of *P. domestica.* A passage in Parkinson's 'Paradisus' seems not only to decide the question *against* the native origin of this tree, but to record by whom it was introduced into this country. At page 567 of the book referred to, Parkinson mentions four kinds of Service-trees. Two of these (*P. Aucuparia* and *Aria*), he tells us, are not cultivated, and therefore "both of these wilde kindes wee leave for another worke (the 'Theatre'), and here declare unto you onely those two sorts are noursed up in our Orchards." These two sorts are *P. torminalis* and *domestica;* of this latter he says, "The other kinde, which is more rare with us, and brought into this land by John Tradescante, heretofore often remembred," etc. The Tradescants were gardeners to Queen Elizabeth and Charles I.; they appear to have introduced many plants, and their extensive collections formed the nucleus of the Ashmolean Museum. If the mound of broken stones in Wyre Forest were examined carefully, perhaps some light might be thrown on the nature of the building which appears to have existed near the tree. It is much to be desired that a series of good photographs of old trees to which interest attaches were taken; many venerable relics of this kind are fast mouldering away, and in a few years will have entirely disappeared. I cannot help thinking that many botanists would be glad to possess such records of these oldest living examples of our Flora.

Stafford, January 14th, 1856. ROBERT C. DOUGLAS.

A List of the rarer British Plants found in the immediate neighbourhood of Chiselhurst, Kent; the figures 1, 2, 3 denoting that they occur within those number of miles, and 3* just over. (I wish the specific name of *Blechnum* to be spelt *spicans, not with a 't,'* as it is an evident mistake in type or otherwise, and I do not like propagating errors when they are evidently such; also the capitals to be used in such names as *Geranium Pyrenaicum.*)

1 Fumaria claviculata.
3 Hutchinsia petræa.
1 Drosera rotundifolia.
2 Dianthus Armeria.
3 Hypericum montanum.
1 ,, Elodes.
2 Geranium Pyrenaicum.
1 ,, molle, *var.* album.
1 ,, Robertianum, *var.* album.
1 Radiola Millegrana.
1 Linum angustifolium.
1 Potentilla argentea.
2 Lathyrus Nissolia.
1 Sedum Telephium.
1 Adoxa Moschatellina.
3 Centranthus Calcitrapa.
2 Campanula Trachelium.
3 Vinca minor.
2 Cuscuta Trifolii.
1 Verbascum Lychnitis (very rare).
3 ,, nigrum.
3* Lathræa Squamaria.
2 Linaria spuria.
1 Scutellaria minor.
1 Marrubium vulgare (very rare).
2 Lysimachia vulgaris.
1 Centunculus minimus.
1 Euphorbia platyphylla.
2 Salix pentandra.
2 Paris quadrifolia.
3 Orchis latifolia.
1 Spiranthes autumnalis.
3* Epipactis latifolia.
2 Convallaria multiflora.
1 Tulipa sylvestris.
1 Allium ursinum.
3* Sparganium simplex (rare).
1 Scirpus palustris.
3 ,, sylvaticus.
1 Carex ovalis.
3 ,, Pseudo-cyperus (rare).
1 Triodia decumbens.
1 Polypodium vulgare.
1 ,, ,, *var.* serratum.
2 ,, ,, *var.* auritum.
3* Lastrea Thelypteris (very rare).
1 ,, montana (very rare).
1 ,, Filix-mas.
1 ,, ,, *var.* incisa.
2 ,, Pseudo-mas.
1 ,, spinosa.
2 ,, ,, *var.* strigosa (probably exterminated).
1 ,, multiflora.
1 Polystichum aculeatum (rare).
3* ,, angulare (very rare).
3 Cystopteris fragilis (rare).
1 Athyrium Filix-fœmina.
1 ,, ,, ,, *var.* incisum.
1 ,, ,, ,, *var.* irrigum.
1 Asplenium Adiantum-nigrum (rare).
1 ,, Trichomanes (exterminated some years).
2 Amesium Ruta-muraria (very rare).
1 Scolopendrium vulgare (a solitary plant, 1854).
1 Blechnum spicans.
1 Pteris aquilina.
1 ,, ,, *var.* multifida.
2 Osmunda regalis (exterminated 1853).
1 Botrychium Lunaria.
1 Ophioglossum vulgatum.
2 Lycopodium inundatum.

Chiselhurst, December 13th, 1856.

Durmast.—A correspondent in the 'Gardeners' Chronicle' for December, 1855, states that he asked for an explanation of the term *Durmast* some months or years ago, but had not at the date of his above notice seen any reply to his query. We beg to inform the above correspondent, if he reads the 'Phytologist,' or if not, the editor of the 'Gardeners' Chronicle,' that Durmast is a species or variety of Oak. Some say it is the *Quercus pubescens* of Willdenow, and others that it is a synonym of *Q. Robur*. They may possibly be all synonyms. *Mast* means the fruit of certain trees, as of Oak, Beech, etc., and *dur* may be a corruption of *dun*, this variety bearing a dun-coloured fruit. SYLVANUS.

Botanical Tour over the Scottish Alps.—One of our energetic correspondents has several times suggested to us the desirableness of a botanical Highland tour in Scotland. We will not put *a wet blanket* over this good suggestion. The proposal is, that a party of botanists should be engaged, and provided with a guide, a tent, and portable provisions; that they should explore the alpine districts of Scotland, and collect, preserve, and record their botanical rarities; the funds necessary for the purpose above mentioned to be raised by subscription, and that the subscribers should be indemnified by the receipt of a certain number of species collected. We lay the proposal before our readers, and request their opinions on the same. ED.

Lotus of the Ancients (See 'Phytologist,' p. 248).—The natural historian Pliny asserts that this tree is a species of *Celtis* (*C. australis*, Lin.), and that in his time it was naturalized in Italy. One of Pliny's editors and commentators remarks that this is one of Pliny's errors. On the authority of this naturalist we learn that the Lotus-tree is the *Rhamnus Lotus* of Linnæus, or the *Zizyphus Lotus* of Desfontaines. It is produced in the North of Africa; and there its fruit is reported to be of such excellence that those who eat it lose all remembrance of their native country. The Lotus-eaters (*Lotophagi*) constituted an entire nation, celebrated for hospitality to strangers. In Europe the fruit is of no repute; but the change of climate may account for this. We have never eaten English-grown figs so sweet and luscious as those produced in Syria (Asiatic Turkey). There is another edible, a kind of pulse, *Lotus edulis*, cultivated in Greece, but not celebrated for its excellence. We know no culinary or alimentary substance of this tribe of plants comparable to the best kinds of garden Peas, such as marrowfats, Prussian blues, etc., or to the variety of broad Bean called the Windsor bean. We have no reason to believe that these were known to the ancients: they have not been long known among ourselves. Our plant *Melilotus*, of which several species grow wild in England, has no qualities similar to those ascribed to the *Lotus* of Africa. Pliny describes another plant called the *Lotus* of the Nile, *Nymphæa Lotus* of Willdenow, and tells us that in his time the Egyptians made bread of the seeds. We learn from this author that the root is eatable. "The Lotus," he says, "has a root about the size of a quince, enveloped in a black skin, similar to that with which the Chestnut is covered. The substance that lies within this skin is white, and forms very pleasant food, but is better cooked, either in water or on hot ashes, than in a raw state. Swine fatten upon nothing better than the peelings of this root." The Sacred Bean (*Nelumbium speciosum*) appears to be both a more useful plant as well as more ornamental than the *Nymphæa Lotus*, and it is not improbable that both plants were confounded by the Romans, from whom we have got the knowledge of these eatables. The roots of the *Nelumbium* are still eaten in China, and are esteemed so highly as to be offered to guests to whom special marks of attention are rendered by their entertainers. The seeds also are very large and delicious,—as large as acorns, and as delicate as almonds. This plant, though not a native of Egypt, might have been cultivated there in the luxurious times of Anthony and Cleopatra, and some accounts of its excellence might have reached Rome. That it would be confounded with the *Nymphæa Lotus* is not an improbable supposition. SYLVANUS.

Another account of the Lotus.—Mr. Loudon, in his great work on Trees, 'Arboretum et Fruticetum Britannicum,' in describing *Celtis australis*, says, "The fruit is blackish, and resembles a very small withered wild cherry, and not edible till the first frost, and it hangs on till the following spring. It is remarkably sweet, and is supposed to have been the Lotus of the ancients, the food of the *Lotophagi*, which Herodotus, Dioscorides, and Theophrastus describe as sweet, pleasant, and wholesome, and which Homer says was so delicious as to make those who ate it forget their country (Odyssey, lib. ix. v. 93). The berries are still eaten in Spain; and Dr. Walsh says that the Greeks are very fond of them." See Loudon's work, as above, vol. iii., p. 1414, second edition. LIBRARIUS.

Lotus of the Ancients.—This plant is, by some of our best authorities on the subject, believed to be the *Rhamnus Lotus* of Linnæus, which is synonymous with the *Zizyphus Lotus*, Lam. It is a deciduous shrub, a native of the interior of Africa, but may be cultivated in this country in a greenhouse, or planted by a protective wall in a rather favourable situation. It has the habit of the *Rhamnus* and the flowers of the common *Jujube;* but the fruit is smaller and sweeter, being only about as large as sloes, and containing rather large stones. The pulp is farinaceous, and, when separated from the stone, is laid up for winter use; its flavour is said to be like that of figs or dates. Bread is sometimes prepared from this fruit, and it is said to taste like gingerbread. ANTIQUUS.

The Ancient Lotus.—Some confusion exists in the accounts of this fruit and plant; it has been represented as a large tree (*Celtis australis*), as a moderately-sized shrub (*Rhamnus Lotus*), and as an inconspicuous humble annual, as *Lotus, Trifolium*, or *Melilotus*, or some sort of *fodder*-plant or *pulse.* It has been confounded with the *Nymphæa Lotus* of the Egyptians, and with the Sacred Bean of Oriental devotees (*Nelumbium speciosum*). The following examples are quoted, to show the multiplicity of meanings which have in different ages and countries been given to this term. 1. The Greek Lotus, which grows wild in Greece and the adjoining opposite coasts of Asia Minor, is a fodder-plant, and probably a species of *Trefoil* or *Melilot.* See Iliad and Odyssey, *passim*, *sub voce*, Index Hom. 2. The African or Cyrenean Lotus, a tree or shrub bearing eatable fruit, and from which a nation or tribe was named *Lotophagi* (Lotus-eaters). See Herodotus, iv. 177; Hom. Od. ix. 84. The historian tells us that it was about the size of an olive, and tasted like the *Date* (φοῖνιξ). This author speaks of a wine prepared from this fruit. Homer calls this eatable ἀνθινὸν εἶδαρ (the flowery food), and hence some have fancied that he meant the Cabbage Palm. Does this Palm grow near the Mediterranean? It is more probable that he means vegetable, in contradistinction to animal, alimentary substances. This fruit is supposed by most authors to be produced by the *Rhamnus Lotus*, Lam. (*Zizyphus Lotus*, Willd.) The Arabian poets call this the fruit of Paradise. 3. The Egyptian Lotus, unknown to Homer, and first mentioned by Herodotus (lib. ii. c. 92); the Water-Lily of the Nile, a fine plant, and well represented by the white Water-Lily of our British rivers and lakes, the queen of all our aquatic plants. Both the fruit and roots of the Nilotic Lilies were eatable. With this the Sacred Bean of India, *Cyamus Smithii* (Nelumbium speciosum), appears to be confounded, even at the present day. Some say that the Egyptian Lotus was introduced into India from the Nile, and that it was equally venerated in both countries. The Oriental Sacred Bean is not an Egyptian plant, but it is probable that the White Lily of the Nile is so. The *Nymphæa alba* of England is also an Indian plant: *teste* Hooker and Thomson's 'Flora Indica.' 4. *Celtis australis*, a lofty tree, a native both of Africa and the South of Europe, is, according to Sprengel, the Lotus-tree of Theophrastus (Hist. Plant., iv. 3, p. 126). 5. *Diospyros Lotus*, mentioned by Virgil (Geor. ii. 84: "*Nec salici, lotoque, nec Idæis cyparissis*"). This plant is hardy in our climate; its fruit is yellowish, and, when ripe, sweet, with some astringency, and about the size of a cherry. The generic name means "Jupiter's fruit," or celestial fruit. The celestials were not so dainty in those days as the modern clodpoles are; the fruit is not so celebrated in our days as Windsor pears and Ribstone pippins. ETYMOLOGUS.

Traveller's Joy.—Clematis Vitalba.—Gerarde says that the above English name is appropriate, "because of its decking and adorning the ways and hedges where people travel." See Johnson's 'Gerarde,' p. 886. The name "Old Man's Beard" is very applicable, because the tails of the carpels are hoary. "Bindwith," another name, is derived from one of the uses of the plant, viz. that of binding up other plants, for which it is and may be used instead of *withs* or *withies.* The elegant term *Viorna* implies that it is an ornamental wayside plant, being derived from *via*, a way, and *orno*, I adorn.

Communications have been received from

A. Russell; W. D. (Cockermouth); J. G. Baker; J. S. Mills; H. B.; Rev. Hugh A. Stowell; W. Mitten, A.L.S.; B. (Bath); T. B. F.; W. H.; W. A. L.; Etymologus; Antiquus; Rev. G. E. Smith; Scrutator; J. A. Brewer (Reigate); Sylvanus; Librarius; John Windsor, F.L.S.

BOOKS RECEIVED FOR REVIEW.

Enumeration of Welwitsch's Portuguese Mosses, by W. Mitten, A.L.S.

Journal of the Proceedings of the Linnæan Society, No. 1.

ERRATA.

In page 251, line 26, for *hors* read *hers,—i. e.* the eradication of the *Lathyrus sylvestris;* in page 279, line 9 from bottom, *for* Elleston *read* Ellerton.

Common Plants.—List A.

There is truth in the old Scottish proverb, viz. "An ass may speer (ask) more questions than a doctor can answer," or "A fool may ask more questions in an hour than a wise man can answer in seven years." The questions may be very proper, such as a wise man would not be ashamed to ask, and still it might be very difficult to give satisfactory answers. The question "What are common plants?" is often put. It is our purpose to state what we believe is meant in ordinary parlance by this term, and to offer a list of common species, to which we have recently directed the attention of the readers of the 'Phytologist.' One of the ancients says that it is a tedious and long process to teach by precept, but an easy and short one by examples. Let us apply this maxim, for it is one, to the process of defining. It is clearer and easier to show what we mean by examples than by any logical or scientific definitions whatever. What are common plants? The *Daisy* (Bellis perennis) is a plant common in most pastures whether wet or dry, let the chemical constituents of the soil be what they may. But this common species is not common in every habitat. It is not common, for example, in cultivated fields, nor in marshy or boggy places. It certainly is not an aquatic, rarely a marsh or woodland plant. Yet it is universally admitted to be one of the commonest plants of Europe, as well as of the British Isles. The *Honeysuckle* (Lonicera Periclymenum) is also a common plant, but it is only so in its peculiar habitats, viz. woods and hedges; it does not grow on the open heath or bare common. *Common Fumitory* is a never-failing weed in cultivated places, whether fields or gardens: it grows where the soil is frequently turned over, and only there. The *White Deadnettle* (Lamium album) is a roadside (viatical) plant only found about hedges, ditches, rubbishy places and such-like habitats. The greater *Bindweed* (Convolvulus sepium) is limited to hedges and woods; it is a septal or a sylvan plant, which does not extend to the extreme northern parts of this island, but is very abundant in the south. The *Pondweeds* (Potamogeton, etc.) are confined to ponds, ditches, streams, lakes, and rivers. They are aquatics and grow sometimes in deep and sometimes in shallow waters. Several of them are reputed common, and they are found wherever they meet with circumstances suited to their peculiar necessities. The common sorts of *Ling, Heath,* etc. are said to be generally distributed, because they always spring up wherever the *débris* of any gritty rocks constitutes a large portion of the surface soil. Yet these plants are absent for miles: between London and Birmingham, by rail, there is scarcely so much as a heather *cowe* to be seen. Between London and Southampton or London and Portsmouth there are miles of country entirely covered with these plants. There are but few exceptions to the following law, viz. that the number of individual plants of any assumed species will be in a direct ratio to the horizontal area and elevation of the species; or, as it may be stated otherwise, if the horizontal and vertical range of a species be great, the number of individuals will also be great. This law is not universal; there are exceptions, but *exceptio probat regulam.* We appeal to the statistics and range of the plants quoted above, as conclusive proof of the prevalence of the above law. The almost entire list of what we call common things may be cited as a proof that the extent of distribution and the number of individuals correspond. All gregarious plants may be called common: where they exist at all, they suffer little other vegetation to grow among them. The Beech-tree, when growing in masses, as on the hills of Buckinghamshire and Oxfordshire, with its thick shade destroys most plants except its own progeny. The Grasses and Sedges and Brambles are examples of the same exclusive tendencies of other species. All these may be called common, because wherever they grow they appear, as the geologists say, in *great force.* Number and extent, reiteration and frequency, appear to be the characteristics of common plants. There are however many plants that will not bear the test applicable to the above, and yet are not usually considered in any other light than that of common plants. *Barbarea vulgaris, Alliaria officinalis, Trifolium medium, Saxifraga granulata,* and many others are examples. These are not so common as some common plants are, yet they are not so scarce as to entitle them to pass muster among the more *recherchés* of our botanical treasures. As it is obviously necessary to adopt some principle in drawing up such a list as is here subjoined, and as we wish the list to be tested by the observation and experience of all who are competent to do this, we now state the principles by which we have been guided. First we take the Floras of the Southern Counties of England; the Devonshire Flora of Jones and Kingston, with the supplementary lists that have been published from time to time; also the lists of Hampshire, Sussex, and Surrey plants; and enter in our list of common plants every species common to the Southern counties and to the Northern. We have only the Northern Flora (incomplete), and the Floras of Aberdeen, by Dickie and Macgillivray. We enter every plant common to the Southern and Northern Counties of Great Britain. We take it for granted that the Aberdeen plants extend further north, though we have no reliable authority further north than Elginshire. We exclude all maritime plants, because these are inadmissible on our principles; we consider them as local plants, however extensive their range may be; they do not answer to the conditions on which the present list is constructed. Second, we strike out every plant for which there is not some authority in the various works on the botanical productions of the interior of the Island, such as Purton's Midland Flora, the Floras of Herts, Oxford, Bedford, Cambridge, Shropshire, Yorkshire, Berwickshire, the catalogue of the Edinburgh Botanical Society, Hopkirk's Flora Glottiana, Gardiner's Flora of Forfarshire, etc. etc. We deem a plant common if it be found in all these Floras, lists, catalogues, etc., unless it be stated that the species is rare, scarce, or the like. It has been thought expedient not to discard from the list of common plants such species as *Convolvulus sepium*, which does not reach the northern confines of Britain. In such cases we consider the species common if it be common in Yorkshire. The Flora of this county is in some measure neutral, having two aspects, one towards the south and the other towards the north. With this latter Flora (Yorkshire) we compare the peculiarities of the more northern species. The number of plants common to the southern counties and Aberdeen is about 550. The number common to the counties bordering on the English Channel and Yorkshire is about 800.

The total number of species which grow spontaneously in the south of England, from the South Foreland on the east, to the Lizard Point on the west, on about three hundred miles of coast, without reckoning the bays and estuaries, and extending thirty miles inland towards the north, may be estimated at, or assumed to be in round numbers about 1000. The number of species which grow on the southern shore of the Pentland Frith, or from Duncansby Head in Caithness to Cape Wrath in Sutherland, about one hundred miles, and extending inland to the Dornoch Frith, probably seventy miles, cannot be estimated at above one-half the number which grows in the South of England. This estimate is founded on the Flora Abredonensis (Macgillivray), which includes about 630 species; but deducting stragglers or uncertain plants introduced with seeds, or in ballast, or in packings, etc., species which rarely prove permanent in the localities where they first appear and whence they get rank among the spontaneous plants, the proper number of plants near Aberdeen is probably under 600. The list of Shetland plants amounts to 357: this number may also be reduced, though for other reasons. The sum of these two lists is, by making the proper deductions, somewhat above 900. If this be divided by *two*, the quotient will be about 450. And if this number be assumed as the amount of species spontaneously produced in the two counties of Sutherland and Caithness, containing probably seven thousand square miles and two hundred and fifty miles of sea-coast exclusive of estuaries, bays, and friths, our estimate will not probably be under the actual number. In the six maritime counties on the northern side of the English Channel, containing probably nine thousand square miles and three hundred miles of sea-coast, we believe the number of species is understated at 1000. It is believed that in the north of Scotland the number is overstated at 450.

The following statement will help those who are not conversant with such matters to apprehend the fact that the number of species is mainly dependent on an increase of temperature. The plants of Spitzbergen, all sorts, are about 80; the plants of Greenland about 200; the plants of Lapland about 500; the plants of Sweden about 1200; those of Germany about 3000, and of France about 6000. In these enumerations microscopic Fungi and Algæ are omitted. The phænogamous plants of the Fero Isles amount to about 250, Ferns included. The phænogamous plants of Shetland, with the Ferns and Fern-Allies, are 350. From these data it may be pretty near the truth to estimate the vegetation of the two Northern counties of Great Britain at 450 or 500 perfect plants, including Ferns and the Fern-Allies. The vegetation of the counties on the South of England certainly amounts to 1000 phænogamous species, including the Ferns and Fern-Allies. Hence the law, which chiefly affects the distribution of species, is deduced, "that their number increases with the increase of temperature, and decreases with the diminution of heat." This loose statement is sufficiently accurate for our purpose, viz. to show that species increase as they approach the equator, or they increase as the latitude decreases; and that they decrease as they recede from the equator and approach nearer to the pole, or decrease as the latitude increases, is a fact. The cause (the principal cause) is the increase of light and heat in the former case and its decrease in the latter. It may be true that there is as much annual light in Lapland as in France, but there is a considerable difference between the annual heat of these two countries. The difference between the annual temperature in the south of England and that in the north of Scotland is only a few degrees. But this difference has a very material influence on plants. In these high northern latitudes few arboreous plants have time enough to ripen wood. The summers are too brief to admit of the formation of buds before the leaves drop off. Herbaceous perennials are subject to similar laws: their vitality is resident in a radical bud, but this cannot be formed till the plant has produced flowers and fruit, for which processes the seasons are too short in high latitudes. The constituents of the soil and the chemical composition of the plants themselves are not, when united, equal to the potent influence of atmospheric causes. The soil of the Land's End and that of John o' Groat's are not surely very dissimilar. Neither is there a great difference in the character of the *Salix caprea,* that is produced equally in both. That grown in Cornwall is probably larger than its Caithness relative: to a botanist they are the same, not individually, but specifically. It is a fact that fewer species are found about Cape Wrath than about Folkestone; and we say that generally this is attributable to atmospheric causes, viz. a diminution of temperature. Moisture, one of the essential elements in promoting vegetation, is as plentiful in Caithness as in Kent.

From the above-stated facts it is inferred that one-half of the plants spontaneously produced in the south of England are not present in the north of Scotland; and hence half the plants of Kent, Hampshire, or Devonshire are not common plants, as we have restricted the term common. It is well known to those who study such subjects that there are plants peculiar to Devon, Hants, and Kent,—species found only in one or two of these counties, but not common to all three. Of course all such are excluded from our list of common things. But we have thought it expedient to enlarge our list by entering plants not common to Devon and Aberdeen even in a second forthcoming list; for we have no list of Caithness and Sutherland plants, and must take the closest approximation we can obtain. A second list will follow the one now given, and will contain several species which are very abundant in the south of England, although they cease to grow in the north of England, or their spontaneous growth is terminated in Yorkshire; they do not reach the borders. The first or larger list of common species will include the South of England and Scottish plants, viz. such as are common both to the south of England and to the centre and north of Scotland; and the second will include such as are found in the south of England, and which terminate in Yorkshire, or in some cases reach the borders, or even extend as far north as the estuaries of Forth and Tay. Our test of assumed common species is not that they are present in the 18 botanical provinces into which Great Britain is divided by the learned author of the 'Cybele Britannica,' nor in 17, nor 16, nor 15, nor 12 of the 18 provinces; neither is it the British type of distribution which is equivalent to the higher figures of the London Catalogue, expressive of the series of botanical provinces. Our test is the presence of the species reputed common, and as such assumed by us, and therefore placed in the subjoined list, in all the county or local floras to which we are able to refer; and not only its presence in all parts of Great Britain as botanically described by these partial floras, but its appearance in them unaccompanied by any mark indicative of rarity or uncommonness. We have stated that we have no good authority further north than the floras of Aberdeenshire, viz. Murray's 'Northern Flora,' Dickie's 'Flora Abredonensis,' and Macgillivray's recent list; but as Aberdeenshire touches the Murray (Moray) Frith, it includes most of the species which are said to be of the boreal or northern type. But where either boreal or austral can be applied to a species, such species is, according to our *canon*, uncommon, and therefore should have no place in our list. It would be a grave misunderstanding of our purpose in submitting this list to our readers to imagine that we, on the authority of all who have hitherto written on the subject, intend to fix any rule as a test of the commonness of a species, or irrevocably determine what are common or what are rare plants. We submit the lists to our correspondents, with the hope that they will corroborate or modify our positions. We may have omitted plants that are common in some places, and we may have entered plants that are rare in other parts, of which we have no accounts. We beg our readers to deduct, first, all maritime species, as not coming under our category of common things; secondly, all alpine plants, as excluded on the same ground. Then if any of what we call common plants are absent or rare in their districts, we hope they will tell us; and secondly, that if any of the excluded species be common with them, we expect they will inform us to what extent these are so. There are two tests of commonness:—1st, whole tracts of gregarious species sometimes separated by distant intervals; 2nd, numerous individuals and frequency of occurrence. Where neither of these characters can be applied, we deem the species rare, and request information accordingly, viz. where the individuals are few and their occurrence infrequent, we say the species is rare.

The authorities from which this list of common species has been compiled are the following:—Flora Devoniensis (Jones and Kingston), together with the various additions supplied by botanists since 1829, and published either separately or in the 'Phytologist.' A portion of a Flora of Hampshire, by Dr. Bromfield (see 'Phytologist,' O.S.) A Flora of Godalming, Surrey, by Mr. Salmon. A Flora of Surrey, by the same, *inedit.* A MS. Flora of Guildford, *penes me.* The same of Hampstead. A portion of a Flora of Croydon, Surrey, *penes me.* Luxford's Reigate Flora. Purton's Midland Flora. Walker's Flora of Oxfordshire. Abbott's Flora Bedfordiensis. Relhan's Flora Cantabrigiensis. Leighton's Flora of Shropshire. Webb and Coleman's Flora Hertfordiensis. Hall's Flora of Liverpool. Davies's Welsh Botanology. Baker's Flora of Yorkshire (Supplement to Baines's Flora; this contains all the Yorkshire plants). Johnston's Flora of Berwick-on-Tweed. Greville's Flora Edinensis. Hopkirk's Flora Glottiana. Gardiner's Flora of Forfar. Murray's Northern Flora. Dickie's and Macgillivray's Lists of Aberdeen Plants (Flora Abredonensis). The English Flora of Smith. The British Flora of Hooker and Arnott. Babington's Manual of British Plants, etc. etc.

The First List (A.) contains the common plants of England and Scotland generally. When in this list F. follows the name of a species, it signifies that the species is a Feroese plant. When Sh. follows, it signifies that the species is a Shetland plant. I. indicates that the species is Indian (*teste* Hooker and Thomson's 'Flora Indica'). The letter L. means that the species is found in Lapland. Further, all the names in this list are representatives of common European plants, *i. e.* of species common to France and Germany, and to the Continent generally.

N.B.—List A. contains the plants common to England and Scotland generally; they are all found in France and Germany.

A List of assumed universally distributed British Species, systematically arranged, in conformity with the London Catalogue; containing all the Plants that are common to the south of England and the north of Scotland, exclusive of local plants (a term to be defined hereafter), maritime or sea-coast plants, and alpine plants.

Anemone nemorosa, *L.*, 17.[1]
Ranunculus aquatilis, *L.*, 18, L.
Ranunculus hederaceus, *L.*, 18.
Ranunculus Ficaria, *L.*, 18. Sh. F.
Ranunculus Flammula, *L.*, 18, Sh. F. L.
Ranunculus acris, *L.*, 18, Sh. F. L.
Ranunculus repens, *L.*, 18, L.
Ranunculus bulbosus, *L.*, 16, L.[2]
Ranunculus sceleratus, *L.*, 18, I.
Caltha palustris, *L.*, 18, Sh. F. I. L.
Papaver dubium, *L.*, 18.
Papaver Rhœas, *L.*, 15.
Fumaria officinalis, *L.*, 18, Sh.
Capsella Bursa-pastoris, *DC.*, 18, Sh. I. L.
Draba verna, *L.*, 17, Sh. I. F.
Cardamine pratensis, *L.*, 18, Sh. F. L.
Cardamine hirsuta, *L.*, 18, Sh. F. I.
Arabis thaliana, *L.*, 17, I.
Barbarea vulgaris, *Br.*, 15, I. L.
Nasturtium officinalis, *Br.* 18, F.
Sisymbrium officinale, *Scop.* 18.
Erysimum Alliaria, *L.*, 17, I.
Sinapis arvensis, *L.*, 18, Sh.
Raphanus Raphanistrum, *L.*, 18, Sh.
Reseda Luteola, *L.*,[3] 16.
Helianthemum vulgare, *Gært.* 15.
Viola canina (*Ger.*) sylvatica, 18, Sh. F. L. ?
Viola tricolor, *L.*, 18, Sh. F.
Drosera rotundifolia, *L.*,[4] 18, Sh. L.
Polygala vulgaris, *L.*, 18, Sh. F.
Silene inflata, *L.*, 17, I.
Lychnis Flos-cuculi, *L.*,[5] 18, Sh.
Lychnis diurna, *Sibth.*, 18, Sh. F. L.

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[1] These numbers are supposed to represent the census of the species, viz. the number of Botanical Provinces in which it is present.

[2] This List is not intended to exclude species not found in Orkney, Shetland, and the Hebridean Isles. We do not know any complete list of Caithness and Sutherland plants.

[3] This plant is plentiful in the southern counties of England, and we have gathered it about and near to Kildrummy Castle, a fine old ruin, about forty miles north-west from Aberdeen.

[4] We have some doubts about the proper place of this plant. According to our experience it is rather local than general.

[5] Is this species rare in elevated localities (400 yards)?

Lychnis Githago, *Lam.*,[1] 18, Sh.
Sagina procumbens, *L.*, 18, Sh. F. I. L.
Sagina apetala, *L.*,[2] 14.
Sagina nodosa, *Mey.*,[3] 18, F. L.
Spergula arvensis, *L.*, 18, Sh. F. L.
Spergularia rubra, *St. Hil.*, 17.
Arenaria serpyllifolia, *L.*, 18.
Arenaria trinervis, *L.*, 16.
Stellaria media, *Wilh.*, 18, Sh. F. I.
Stellaria Holostea, *L.*, 18.
Stellaria graminea, *L.*, 18, Sh. F.
Stellaria uliginosa, *Mur.*, 18, Sh. F.
Cerastium glomeratum, *Th.*, 18, Sh. F. I.
Cerastium triviale, *Link*, 18, Sh. F. L. ?
Linum catharticum, *L.*, 18, Sh. F.
Radiola Millegrana, *Sm.*, 18.[4]
Malva sylvestris, *L.*, 17.
Malva rotundifolia, *L.*, 14.
Malva moschata, *L.*,[5] 16.
Hypericum dubium, *Leers*, 15, F.
Hyp. perforatum, *L.*,[6] 16, Sh. F. I. L.
Hypericum quadrangulum, *L.*, 17.
Hypericum humifusum, *L.*,[7] 16.
Hypericum pulchrum, *L.*,[8] 18, Sh.
Hypericum hirsutum, *L.*, 15.
Erodium cicutarium, *Sm.*, 18, I.
Geranium molle, *L.*, 18, Sh.
Geranium dissectum, *L.*, 17.
Geranium pusillum, *L.*,[9] 13.
Geranium robertianum, *L.*, 18, I.
Oxalis Acetosella, *L.*, 18, F. I. L.
Spartium scoparium, *L.*, 17.
Ulex europæus, *L.*, 17.
Genista anglica, *L.*, 17.
Ononis arvensis, *L.*, 17, I.
Anthyllis Vulneraria, *L.*, 18, Sh.
Medicago Lupulina, *L.*, 17, I.
Trifolium repens, *L.*, 18, Sh. F. I. L.
Trifolium pratense, *L.*, 18, Sh. I. L.
Trifolium medium, *L.*,[10] 18, Sh.
Trifolium arvense, *L.*,[11] 17.
Trifolium procumbens, *L.*,[12] 18.
Trifolium filiforme, *L.*,[12] 17.
Lotus corniculatus, *L.*, 18, F. I.
Lotus major, *Scop.*, 16.
Ornithopus perpusillus, *L.*, 16.
Vicia Cracca, *L.*, 18, Sh. F. L.
Vicia sativa, *L.*, 18, Sh. I.
Vicia hirsuta, *Koch*, 18, I. L.
Lathyrus pratensis, *L.*, 18, Sh. F.
Orobus tuberosus, *L.*, 18, Sh.
Prunus spinosa, *L.*, 17.

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[1] The writer of this List remembers the first appearance of this plant in that part of the Garioch district of Aberdeenshire where he lived in his youth. It sprang up in a field of wheat, a crop at that period (1816) rarely produced in that part of the country (twenty miles north-west of Aberdeen).

[2] We enter this plant with some hesitation, and request information about its distribution.

[3] Scarcely a common plant. Less common than *S. apetala ?*

[4] This plant, like *Erica cinerea* and *Calluna vulgaris*, does occur copiously in proper situations and soils.

[5] On the trap or basalt formations in Worcestershire this is the most plentiful of the three species.

[6] This we should, from our own observation, have judged to be the most common of all the British *Hyperica*. We beg to submit this, with many other points, to the consideration of the attentive perusers of this List.

[7] Is this plant either so widely spread, or do so many examples occur as of *H. perforatum ?*

[8] This plant has the highest estimate, both provincial and comital, of all the *Hypericaceæ*.

[9] In the south of England this species is probably as abundant as *G. molle*, with which it may have been confounded.

[10] We venture to call attention to this species, as one likely to be confounded with *T. pratense*.

[11] This plant is usually abundant where it occurs at all. Its comital (county) estimate is only 60.

[12] In the 'Cybele' the estimates of both these are the same, viz. 18 and 80.

Spiræa Ulmaria, *L.*, 18, Sh. F.
Geum urbanum, *L.*, 17, I.
Agrimonia Eupatoria, *L.*, 16, I.
Potentilla anserina, *L.*, 18, Sh. F. I. L.
Potentilla reptans, *L.*, 16, I.
Potent. Tormentilla, *Schk.*, 18, Sh. I. L.
Potentilla Fragariastrum, *Ehrh.*, 16.
Comarum palustre, *L.*,[1] 18, F.
Fragaria vesca, *L.*, 18, Sh. I.
Rubus Idæus, *L.*,[2] 18, L.
Rosa spinosissima, *L.*, I. L.
Rosa canina, *L.*, 18, L.
Alchemilla arvensis, 18.
Cratægus Oxyacantha, *L.*, 17, Sh. I.
Pyrus Aucuparia, *L.*, 18, L.
Epilobium montanum, *L.*, 18, Sh. F. I. L.
Epilobium parviflorum, *Schreb.*, 17, I.
Epilobium palustre, *L.*, 18, Sh. F. I. L.
Epilobium tetragonum, *L.*, 17, F. I.
Circæa lutetiana, *L.*, 17, I.
Myriophyllum alterniflorum, *DC.*, 17, F.
Myriophyllum spicatum, *L.*, 18.
Callitriche verna, *S.*, 18, Sh. F. I.
Peplis Portula, *L.*, 18, L.
Montia fontana, *L.*, 18, F. L.
Scleranthus annuus, *L.*, 17.
Sedum acre, *L.*, 18, L.
Saxifraga granulata, *L.*, 13.
Chrysosplenium oppositifolium, *L.*, 18.
Hedera Helix, *L.*, 18, I. L.
Hydrocotyle vulgaris, *L.*, 18, Sh.
Sanicula europæa, *L.*, 17.
Conium maculatum, *L.*, 18.
Helosciadium nodiflorum, *Koch*, 15.
Helosciadium inundatum, *Koch*, 18.
Ægopodium Podagraria, *L.*, 16.
Bunium flexuosum, *Wilh.*, 18.
Pimpinella Saxifraga, *L.*, 17, L.
Œnanthe fistulosa, *L.*, 15.
Œnanthe crocata, *L.*, 16.
Æthusa Cynapium, *L.*,[3] 14.
Angelica sylvestris, *L.*, 18, Sh. F. L.
Heracleum Sphondylium, *L.*, 18, Sh.
Daucus Carota, *L.*, 18, I.
Torilis Anthriscus, *Gært.*, 14, I.
Scandix Pecten, *L.*, 15, I.
Anthriscus vulgaris, *Pers.*, 16, Sh.
Anthriscus sylvestris, *Hoffm.*, 18, Sh. L.
Chærophyllum temulentum, *L.*, 17.
Lonicera Periclymenum, *L.*, 18, Sh.
Galium verum, *L.*, 18, Sh. L.
Galium uliginosum, *L.*, 14, Sh. F. L.
Galium saxatile, *L.*, 18, Sh. F.
Galium palustre, *L.*, 18, Sh. L.
Galium Aparine, *L.*, 18, I.
Sherardia arvensis, *L.*, 17.
Asperula odorata, *L.*, 18, Sh.
Valeriana officinalis, *L.*, 18, L.
Fedia olitoria, *Vahl*, 18.
Scabiosa succisa, *L.*, 18, Sh. F.
Knautia arvensis, *Coult.*, 18.
Tragopogon pratensis (minor), *L.*,[4] 15.
Apargia autumnalis, *Willd.*, 18, Sh. F.
Hypochæris radicata, *L.*, 18.
Sonchus arvensis, *L.*, 18, Sh. I.
Sonchus asper, *Hoffm.*,[5] 18.
Sonchus oleraceus, *L.*,[5] 18, Sh. I. L.
Crepis virens, *L.*, 18.
Hieracium Pilosella, *L.*, 18, F.
Hieracium murorum, *L.*, 18 ?, F.
Hieracium cæsium, *Fr.*, 18 ?
Hieracium vulgatum, *Fr.*, 18.
Hieracium boreale, *Fr.*, 16.
Taraxacum officinale, *Wigg*, 18, Sh. L.
Lapsana communis, *L.*, 18.
Arctium Lappa, *L.*, 18.
Arctium Bardana, *Willd.*, 18 ?
Carduus acanthoides, *L.*, 16, F.
Carduus palustris, *L.*, 18, Sh. F.
Carduus lanceolatus, *L.*, 18, Sh. F.

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[1] A rather rare species.

[2] Usually plentiful where it occurs, but ? local.

[3] This plant occurs in Aberdeenshire, though confined to gardens. It is chiefly found in gardens and rubbish here (south of England).

[4] *T. minor*, Fr., is common in the south of England.

[5] These two are said by some to be forms of one species. We wish to have the opinion of our readers on this point, and especially on their distribution. *S. asper* is a recent offset from *S. oleraceus*, L.

Carduus arvensis, *L.*, 18, Sh. L.
Centaurea nigra, *L.*, 18, Sh.
Centaurea Cyanus, *L.*, 18. Sh.
Bidens cernua, *L.*,[1] 16.
Eupatorium cannabinum, *L.*, 17.
Tanacetum vulgare, *L.*, 18, Sh. F. L.
Artemisia vulgaris, *L.*, 18, Sh. L.
Gnaphalium uliginosum, *L.*, 18, L.
Filago minima, *Fr.*, 17.
Filago germanica, *L.*, 18, L.
Petasites vulgaris, *Desf.*,[2] 16, Sh.
Tussilago Farfara, *L.*, 18, Sh. F.
Solidago Virgaurea, *L.*, 18, Sh.
Senecio vulgaris, *L.*, 18, Sh. F.
Senecio sylvaticus, *L.*, 18.
Senecio Jacobæa, *L.*, 18, Sh.
Senecio aquaticus, *Hud.*, 18, Sh.
Bellis perennis, *L.*, 18, Sh. F.
Chrysanthemum segetum, *L.*, 18, Sh.
Chrysanth. Leucanthemum, *L.*, 18, Sh.
Pyrethrum inodorum, *Sm.*, 18, Sh.
Achillea Ptarmica, *L.*, 18, Sh. F.
Achillea Millefolium, *L.*, 18, Sh. F. L.
Campanula rotundifolia, *L.*, 18, Sh. F.
Jasione montana, *L.*, 16, Sh.
Erica Tetralix, *L.*, 16, Sh.
Erica cinerea, *L.*, 18, Sh. F.
Calluna vulgaris, *Salis.*, 18, Sh. F. L.
Vaccinium Myrtillus, *L.*, 18, Sh. F. L.
Ilex Aquifolium, *L.*, 18.
Fraxinus excelsior, *L.*, 17.
Gentiana Amarella, *L.*, 17, Sh.
Erythræa Centaurium, *L.*, 18, Sh. I.
Menyanthes trifoliata, *L.*,[3] 18, Sh. F. L.
Convolvulus arvensis, *L.*,[4] 14.
Solanum Dulcamara, *L.*, 17.
Veronica arvensis, *L.*, 18, Sh.
Veronica serpyllifolia, *L.*, 18, Sh. F. L.
Veronica scutellata, *L.* 18, L.
Veronica Anagallis, *L.*, 17, Sh. F.
Veronica Beccabunga, *L.*, 18, Sh. F. I.
Veronica officinalis, *L.*, 18, Sh. F. I. L.
Veronica Chamædrys, *L.*, 18, Sh. L.
Veronica hederæfolia, *L.*, 18, Sh. L.
Veronica agrestis, *L.*, 18, I.
Veronica polita, *Fr.*, 15 ?
Bartsia Odontites, *Hud.*, 18.
Euphrasia officinalis, *L.*, 18, Sh.
Rhinanthus Grista-galli, *L.*, 18, Sh.
Melampyrum pratense, *L.*, 18.
Pedicularis sylvatica, *L.*, 18, Sh.
Pedicularis palustris, *L.*, 18, Sh.
Scrophularia nodosa, *L.*, 18.
Digitalis purpurea, *L.*, 18.
Linaria vulgaris, *Mill.*, 16.
Lycopus europæus, *L.*, 17.
Mentha aquatica, *L.*, 18.
Mentha arvensis, *L.*, 18.
Thymus Serpyllum, *L.*, 18, Sh.
Thymus Chamædrys, *Fr.*
Origanum vulgare, *L.*, 16.
Teucrium Scorodonia, *L.*, 18.
Ajuga reptans, *L.*, 18, Sh.
Lamium album, *L.*, 14.
Lamium amplexicaule, *L.*, 18, I.
Lamium purpureum, *L.*, 18, Sh. F.
Lamium incisum, *Willd.*, 18 ?, Sh.
Galeopsis Ladanum, *L.*, 15, F.
Galeopsis Tetrahit, *L.*, 18.
Stachys palustris, *L.*, 18.
Stachys sylvatica, *L.*, 18.
Stachys arvensis, *L.*, 18.
Glechoma hederacea, *L.*, 18.
Prunella vulgaris, *L.*, 18, Sh. I.
Scutellaria galericulata, *L.*, 18, I.
Myosotis palustris, *With.*, 15, Sh. F.
Myosotis cæspitosa, *Schultz*, 18, Sh. L.
Myos. arvensis, *Hoffm.*, 18, Sh. F. I. L.
Myosotis versicolor, *Lehm.*, 18, Sh.
Myosotis collina, *Hoffm.*, 16, F.

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[1] This is retained because it is inserted in Dickie's 'Flora Abredonensis,' on the authority of a specimen in the late Dr. A. Murray's herbarium, with the note "Loch of Leys." About Glasgow *B. tripartita* is plentiful, and *B. cernua* rare (*teste* Hopkirk, Glot. Fl., pp. 101, 102).

[2] Is this a common plant? We have seen it plentiful in Kincardineshire, lat. 57°.

[3] The prevalence of drainage will ultimately render this a scarce plant.

[4] A local plant in Aberdeenshire, and not common about Glasgow.

Lithospermum arvense, *L.*, 18, I. L.
Symphytum officinale, *L.*,[1] 15.
Lycopsis arvensis, *L.*, 18, Sh. I. L.
Echium vulgare, *L.*, 18.
Pinguicula vulgaris, *L.*,[2] 18, Sh. F.
Utricularia vulgaris, *L.*, 16, Sh.
Utricularia minor, *L.*, 18.
Primula vulgaris, *Huds.*, 18, Sh. F.
Primula veris, *L.*, 17.
Lysimachia nemorum, *L.*, 17.
Anagallis arvensis, *L.*, 16.
Anagallis tenella, *L.*, 17, Sh. F.
Plantago major, *L.*, 18, Sh. F. L.
Plantago lanceolata, *L.*, 18, Sh. F.
Plantago Coronopus, *L.*, 18, Sh. F.
Plantago media, *L.*, 14, Sh. F. ?
Littorella lacustris, *L.*, 18, Sh. L.
Chenopodium rubrum, *L.*, 14.
Chenopodium album, *L.*, 18, Sh. F. I. L.
Chenopodium Bonus-Henricus, 17.
Atriplex Babingtonii, *Wds.*, 18.
Atriplex hastata, *L.*, 18, F. I.
Atriplex patula, *L.*, 18, L.
Atriplex deltoidea, *Bab.*, 18.
Polygonum amphibium, *L.*, 18, Sh.
Polygonum lapathifolium, *L.*, 16.
Polygonum Persicaria, *L.*, 18, Sh. F. L.
Polygonum Hydropiper, *L.*, 17, Sh. F. I.
Polygonum aviculare, *L.*, 18, Sh. F. I. L.
Polygonum Convolvulus, *L.*, 18, L.
Rumex crispus, *L.*, 18, Sh. F. L.
Rumex Hydrolapathum, *H.*, 12.
Rumex obtusifolius, *L.*, 18, I.
Rumex sanguineus, *L.*, 16.
Rumex conglomeratus, *Mur.*, 15, Sh.
Rumex Acetosa, *L.*, 18, F. I. L.
Rumex Acetosella, *L.*, 18, F. L.
Euphorbia Helioscopia, *L.*, 18, Sh. I. L.
Euphorbia Peplus, *L.*, 17, I.
Euphorbia amygdaloides, *L.*, 10.
Mercurialis perennis, *L.*, 18.
Urtica urens, *L.*, 18, Sh.
Urtica dioica, *L.*, 18, Sh. F.
Parietaria officinalis, *L.*, 16, I.
Ulmus montana, *Sm.*, 18.
Quercus Robur, *L.*, 17.
Corylus Avellana, *L.*, 18.
Alnus glutinosa, *L.*, 18, L.
Betula alba, *L.*, 18, L.
Populus tremula, *L.*, 18, L.
Populus nigra, *L.*,[3] Sh.
Salix fragilis, *L.*, 15, L.
Salix alba, *L.*, 16.
Salix purpurea, *L.*, 15.
Salix viminalis, *L.*, 15.
Salix cinerea, *L.*, 18.
Salix aurita, *L.*, 18, Sh.
Salix caprea, *L.*, 16, F. L.
Salix fusca, *L.*,[4] 18, Sh. L.
Myrica Gale, *L.*, 17, L.
Juniperis communis, *L.*, 18, Sh. L.
Taxus baccata, *L.*, 13.
Listera ovata, *L.*, 17.
Orchis Morio, *L.*, 11, F.
Orchis mascula, *L.*, 18, Sh.
Orchis latifolia, *L.*, 18, Sh. F.
Orchis maculata, *L.*, 18, Sh. F.
Gymnadenia Conopsea, *Br.*, 18.
Habenaria bifolia, *Br.*, 17 ?
Habenaria chlorantha, *Bab.*, 14.
Iris Pseudacorus, *L.*, 18, Sh. F. L.
Allium ursinum, *L.*, 17.
Allium vineale, *L.*,[5] 14.
Hyacinthus non-scriptus, *L.*, 18, Sh.
Alisma Plantago, *L.*, 17.
Triglochin palustre, *L.*, 18, Sh. F.
Potamogeton pectinatus, *L.*, 15, Sh.
Potamogeton pusillus, *L.*, 16.
Potamogeton crispus, *L.*, 15, Sh. I.
Potamogeton perfoliatus, *L.*, 17, I.

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[1] Rare in Aberdeenshire.

[2] ? A Hampshire plant (see Bromfield).

[3] A supposed alien, as the Poplars probably are. We have entered this one as being the most common, being found from the south of England to the Shetland Isles. *P. fastigiata*, the Lombardy Poplar, is believed by some to be a variety of this one (comp. Loud. 'Arboretum Brit.').

[4] Including *S. repens, prostrata, fœtida, incubacea, argentea.*

[5] Very local in Aberdeenshire; probably so everywhere.

Potamogeton rufescens, *Schrad.*, 17.
Potamogeton natans, *L.*, 18, Sh. F. I. L.
Potamogeton lucens, *L.*, 14, Sh. F.
Lemna minor, *L.*, 18.
Arum maculatum, *L.*, 14.
Sparganium ramosum, *Huds.*, 18.
Sparganium simplex, *Huds.*, 17.
Juncus conglomeratus, *L.*, 18, Sh. F.
Juncus glaucus, *L.*, 14.
Juncus acutiflorus, *Ehr.*, 18, Sh.
Juncus lamprocarpus, *Ehr.*, 18, Sh. I.
Juncus supinus, *Mœnch*, 18.
Juncus compressus, *Jacq.*,[1] 13, Sh.
Juncus bufonius, *L.*, 18, Sh. F. I. L.
Juncus squarrosus, *L.*, 18, Sh. F. L.
Luzula sylvatica, *Bich.*, 18, Sh.
Luzula pilosa, *Willd.*, 18, Sh. L.
Luzula campestris, *Br.*, 18, F. L.
Luzula multiflora, *Lej.*,[2] 18.
Narthecium ossifragum, *Huds.*, 18.
Scirpus lacustris, *L.*, 18, Sh. L.
Scirpus setaceus, *L.*, 18.
Scirpus sylvaticus, *L.*,[3] 16.
Scirpus palustris, *L.*, 18, Sh. F. I. L.
Scirpus pauciflorus, *Lightf.*, 17.
Scirpus cæspitosus, *L.*, 18, Sh. F.
Scirpus fluitans, *L.*, 16, F.
Eriophorum vaginatum, *L.*, 18, Sh. F. L.
Erioph. angustifolium, *Rh.*, 18, Sh. F.
Eriophorum latifolium, *Hopf.*, 16.
Carex pulicaris, *L.*, 18, Sh. F.
Carex stellulata, *Good*, 18, F.
Carex ovalis, *Good*, 18, Sh.
Carex curta, *Good*, 16.
Carex remota, *L.*, 16.
Carex muricata, *L.*, 15.
Carex vulpina, *L.*, 16.
Carex paniculata, *L.*, 17.
Carex vulgaris, *L.*, 18.
Carex acuta, *L.*, 15, F.
Carex flava, *L.*, 18, Sh. F. I.
  b. Œderi, *Aut.*, 16.
Carex pallescens, *L.*, 17, F.
Carex fulva, *Good*, 18.
Carex distans, *L.*, 17.
Carex binervis, *Sm.*, 18, Sh.
Carex panicea, *L.*, 18, F.
Carex sylvatica, *Huds.*, 15.
Carex glauca, *Scop.*, 18, Sh.
Carex præcox, *Jacq.*, 16, Sh.
Carex pilulifera, *L.*, 18.
Carex hirta, *L.*,[4] 15.
Carex ampullacea, *Good*, 18, Sh. I.
Carex vesicaria, *L.*, 16, F.
Carex paludosa, *Good*, 16, I.
Phalaris arundinacea, *L.*, 18, Sh. F. L.
Anthoxanth. odoratum, *L.*, 18, Sh. F. L.
Phleum pratense, *L.*, 18, Sh. F.
Alopecurus pratensis, *L.*, 18, Sh. F. I. L.
Alopecurus geniculatus, *L.*, 18, Sh. F. L.
Milium effusum, *L.*, 16, L.
Agrostis canina, *L.*, 18, F.
Agrostis vulgaris, *L.*, 18, Sh. F. I.
Agrostis alba, *L.*, 18, Sh. F.
Phragmites vulgaris, *Trin.* (Arundo Phrag.), *L.*, 18, Sh. L.
Aira cæspitosa, *L.*, 18, Sh. F. L.
Aira flexuosa, *L.*, 18, Sh. F. L.
Aira caryophyllea, *L.*, 18, Sh.
Aira præcox, *L.*, 18, Sh.
Avena pratensis, *L.*, 16.
Avena pubescens, *L.*, 17.
Arrhenath. avenaceum, *Beauv.*, 18, Sh.
Holcus lanatus, *L.*, 18, Sh. F.
Holcus mollis, *L.*, 18, Sh. F.
Triodea decumbens, *Beauv.*, 18, Sh.
Melica uniflora, *Retz*, 15, Sh.
Molinea cærulea, *Mœnch*, 18, Sh. F.
Catabrosa aquatica, *Presl*, 17, Sh.
Glyceria fluitans, *Br.*,[5] 18, Sh. F.
Glyceria plicata, *Fr.*, 9.
  b. hybrida, *Towns.*
Glyceria rigida, *Sm.*, 14.
Poa annua, *L.*, 18, Sh. F. I.

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[1] Frequent near Aberdeen.

[2] We request that this form or species be observed.

[3] Rare near Aberdeen.

[4] Rather local in Aberdeenshire.

[5] Particular attention to the characters and distribution of these three forms or varieties or species is requested.

Poa pratensis, *L.*, 18, Sh. F. I. L.
Poa trivialis, *L.*, 18, Sh. F.
Poa nemoralis, *L.*, 16, I.
Briza media, *L.*, 18.
Cynosurus cristatus, *L.*, 18, Sh.
Dactylis glomerata, *L.*, 18, Sh. F. I.
Festuca bromoides, *L.*, 17.
Festuca ovina, *L.*, 18, Sh. F. I. L.
Festuca duriuscula, *L.*, 18, Sh.
Festuca pratensis, *Huds.*, 18, Sh. F.
  b. loliacea, *Huds.*, 15.
Festuca elatior (doubtful sp.), 15.
Bromus giganteus, *L.*, 16.
Bromus asper, *L.*, 16.
Bromus sterilis, *L.*, 15.
Bromus secalinus, *L.*, 16, L.
Bromus commutatus, *Schrad.*, 16, Sh.
Bromus mollis, *L.*, 18, Sh.
  b. racemosus, *L.* ?
Brachypodium sylvaticum, *Beauv.*, 18, I.
Triticum caninum, *Huds.*, 15.
Triticum repens, *L.*, 18, Sh. F. L.
Lolium perenne, *L.*, 18, Sh. L.
Hordeum pratense, *Huds.*, 12.
Nardus stricta, *L.*, 18, Sh.
Polypodium vulgare, *L.*, 18, Sh.
Aspidium aculeatum, *Sw.*, 16.
  b. lobatum, *Sw.*, 17.
Lastrea Oreopteris, *Presl*, 18, Sh.
Lastrea Filix-mas, *Presl*, 18, Sh. L.
Lastrea dilatata, *Presl*, 18.
Athyrium Filix-fœmina, *Rh.*, 18, Sh. L.
Asplenium Trichomanes, *L.*, 18.
Asplenium Adiantum-nigrum ?, 18.
Asplenium Ruta-muraria, *L.*, 18.
Scolopendrium vulgare, *Sym.*, 18, Sh.
Blechnum boreale, *Sw.*, 18.
Pteris aquilina, *L.*, 18, Sh.
Lycopodium clavatum, *L.*, 18.
Lycopodium Selago, 18.
Equisetum arvense, *L.*, 18, L.
Equisetum sylvaticum, *L.*, 18.
Equisetum palustre, *L.*, 18, L.
Equisetum limosum, *L.*, 18.
  b. fluviatile, *Newm.*
  c. fluviatile, *Fr.*

Diagnostics of Polystichum aculeatum *and* angulare.

The following description is intended to illustrate about the middle of a frond of the normal fully developed growth of the plants under consideration.

POLYSTICHUM ACULEATUM—LOBATUM.—The latter name is applied to the exposed or subalpine form. This species is the more rigid of the two; it is more erect, robust, and fleshy, the frond more linear and less drooping in its mature state, than its congener. The scales are less numerous, and generally darker and shorter. The small pedicle, or footstalk, which connects the pinnula with the pinna is much stouter than in *P. angulare*, and more inclined to be decurrent. There is but little or no rotundity at A on the posterior side* of the pinnula, and its angle B with the apex of the pinna is more acute, as shown in the accompanying diagram. The angle also of the pinna at C with the main rachis is very different, this being acute, that of *P. angulare* nearly a right angle. The two plants rarely grow together in the same district, which, if not botanical, is at least circumstantial evidence of their distinctness as species.

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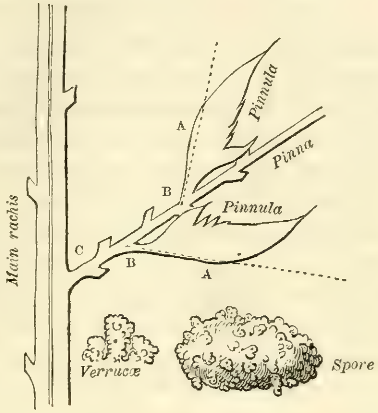
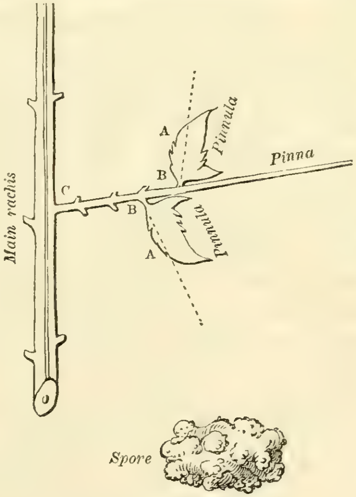
* Posterior with reference to the pinna.



The scales are left out.

P. aculeatum.—Fronds evergreen, generally *erect* through the winter, never in its fullest development producing the variety *subtripinnatum.* Common in the north of England (showing its hardiness). Spores biverrucose; primary verrucæ *small.*

Polystichum angulare, or more properly, as Mr. Moore says, "*P. setiferum*" (Forskal, 1775), if it prove a *species,* in its usual average growth is much more thickly covered with scales, and those of a lighter colour and less robust than in *P. aculeatum.* It is also more lax or drooping in habit, and papery in texture. The pinnulæ are usually more stipitate, and their stalks much finer or hair-like than the last species. The rotundity of the posterior side* of the pinnula at A, and the angle at which it is attached to the pinna at B, are its chief peculiarities (and to those who have studied the habits of the two plants growing



The scales are left out.

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* Posterior with reference to the pinna.

together, under cultivation, attentively, will, I am convinced, always lead to a right conclusion). In *P. angulare,* although the direction of the pinnula is towards the apex of the pinna in a slight degree, it is far less so than in *P. aculeatum,* and it always has a greater tendency to bulge on its posterior* margin, giving it the semblance of falling back towards the axil of the pinna, as shown in the diagram. The pinnæ are also more nearly opposite in this species, and nearly at a right angle with the rachis at c.

P. angulare.—Fronds evergreen, *prostrate* through the winter, decaying at the base, *always* in its fullest development producing the variety *subtripinnatum. Rare* in the north of England, showing its tendency to be tender. Spores biverrucose; primary verrucæ *very coarse* in comparison with *P. aculeatum.*

On the Hieracia *of North Yorkshire and Teesdale.* By JOHN G. BAKER.

(*Continued from page* 231.)

5. *H. murorum,* Linn. Spec. Pl. 1128, *pro parte;* Fries, Symb. 109.—Stem one to two feet high, rigid or flexuose, usually with a single leaf, slightly hairy below, corymbose above. Petioles shaggy. Root-leaves numerous, densely rosulate, green upon the upper surface, occasionally tinged with purple, paler beneath: outer rounded, obtuse; inner large, ovate-lanceolate, with several acute teeth below the middle, the lower of which are pointed downwards. Peduncles arcuate-ascending, like the ovate-based involucres clothed with white stellate down and black hairs and setæ. Heads numerous. Phyllaries dark green, paler at the margins; outer acute, inner acuminate. Ligules commonly glabrous. Styles more or less livid.

Rocks and walls, not infrequent both amongst the oolitic and carboniferous ranges of moorlands, but not so common as the next-mentioned species, in juxtaposition with which it often grows. On the west of the central valley in Teesdale, the ordinary place of these is in a great measure filled by *H. pallidum.*

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* Posterior with reference to the pinna.

In Swaledale I am only aware of the occurrence of the following:—In Wensleydale *H. murorum* may be found on rocks in the vicinity of Aysgarth Force and other places. On the last it is plentiful about Rainton heights and Hawnby bank, where the examples issued in my fasciculus were gathered; and it may be found also more sparingly on the western margin of this set of hills. The range of elevation that I have noticed is from 100 to 400 yards. In shady places the leaves are dilated in size, and conspicuously reversely incised below; this state is var. *sylvaticum* of Fries, and doubtless also the *H. nudicaule* of Edmonston (*vide* 'Phytologist,' iv. 843).

6. *H. cæsium*, Fries, Nov. ed. 1, p. 76?—Stem one to two feet high, rigid or flexuose, usually with one or two distinctly stalked leaves, slightly hairy below, corymbose above. Petioles shaggy. Root-leaves numerous, densely rosulate, green above, paler and cæsio-glaucous below, subcoriaceous in sunny situations, frequently more or less tinged with purple; outer oblong-obtuse; inner ovate-lanceolate, sparingly toothed below. Peduncles patent, rigid, like the blunt-based involucres covered with white stellate down and black hairs and setæ. Heads numerous. Phyllaries dark green, blackish when dry, paler at the margins; outer obtuse; inner more acute. Ligules glabrous. Styles more or less livid.

Rocks and walls, in precisely similar situations to the preceding. In several places throughout Teesdale, but not so common there as *H. pallidum*. In Swaledale, near Richmond, and in Wensleydale, in the neighbourhood of Aysgarth Force, and other localities. Frequent amongst the Hambleton Hills and other moorlands of the lower oolite. Ascertained range of elevation in the district 100 to upwards of 500 yards. M. Jordan assures me that this is "très différent de l'*H. cæsium*, Fries;" but what is described by Grenier and Godron (Flore de France, vol. ii. p. 372), a plant with "mostly scapiform and naked stems," is evidently not what is intended in the 'Symbolæ.' It is however very probable that further research may show that the *cæsium* which I have just described is not identical specifically with that from the Highlands, which Fries authenticated. In the position of its leaves and the vestiture of its peduncles (*vide* Dr. Walker Arnott's comments in the seventh edition of the 'British Flora,' p. 223), the plant now under consideration approaches *murorum* rather than *vulgatum*; but after seeing it repeatedly growing side by side with those two species, I cannot doubt that it is permanently distinct from both.

7. *H. vulgatum*, Fries, Nov. ii. p. 258.—*H. maculatum* and *sylvaticum*, Smith.—Stem one to two feet high, rigid or flexuose, more or less leafy, slightly hairy below, paniculate-corymbose above. Root-leaves very variable in number, sometimes forming a rosette, usually about three or four, occasionally all faded at the flowering time, ovate, oblong, or lanceolate, narrowed at both ends, frequently more or less tinged or spotted with purple, principally toothed about the middle. Stem-leaves mostly stalked, variable in number, decreasing gradually upwards, lower contiguous to the base of the stem. Peduncles erecto-patent, like the ovate-based involucres thickly covered with black hairs, setæ, and more or less white stellate down. Heads numerous, comparatively small. Phyllaries dark green, paler at the margins, gradually attenuated, acute. Ligules glabrous. Styles fuscescent.

Rocks, walls, woods, and hedge-banks, with the single exception of *H. Pilosella*, the commonest and most widely distributed species. Range of elevation from the coast-level to 600 yards. With such a comprehensive degree of adaptation to varying stations as this species possesses, it is necessarily a very changeable plant. Its forms may be considered as grouping themselves under two series, one with fewer and narrower, the other with more numerous, higher, and broader leaves. The best marks by which to recognize it from the two preceding are found in the dentation and position of the leaves. The author of the 'Cybele' inquires for localities in the Lake districts. I may mention Grizedale in Westmoreland (J. W. Watson?) and the Scars on the north side of Mazebeck in Teesdale.

8. *H. gothicum*, Fries, Symb. p. 121.—Stem one to two feet high, more or less leafy, usually rigid and nearly glabrous, subcorymbose above. Root-leaves dark green, very variable in number, frequently all faded at the flowering time, ovate or lanceolate, narrowed gradually at each end, principally toothed about the middle. Stem-leaves resembling the root-leaves in shape, decreasing gradually upwards. Peduncles erecto-patent, sometimes elongated, like the blunt-based involucres, sparingly clothed with hairs and setæ. Heads larger but less numerous than those

of *H. vulgatum.* Phyllaries glabrous above, dark green, paler at the margins, black when dry; outer blunt; inner subacute. Ligules glabrous. Styles yellowish.

On the banks of Langdonbeck, near the road from Alston to Middleton, and rocks by the Tees above and below the High Force on the Durham side of the river. In company with *H. iricum,* in considerable abundance on the Yorkshire bank below Wincebridge and Holnick. In Cleveland with *H. crocatum* and *umbellatum,* on the edge of the moor above Ingleby Greenhow. Range of elevation, 300–400 yards. Some misapprehension has caused the supposition expressed ('Phytologist,' iii. p. 999), that Fries refers a plant collected by Leighton in Shropshire to this species. He merely speaks (Symb. p. 122) of specimens received from Leighton and two other botanists as remarkable plants "ex stirpe *H. vulgati.*" In this country I have seen the true *gothicum* only from the Humber, Tyne, and East Highland provinces. It admirably connects together this series and the next, and, in the 'Summa Vegetabilium,' is placed by the side of *H. tridentatum,* in a group of species styled *Pseudo-pulmonareæ.*

(*To be continued.*)

Botanical Notes from East Suffolk. By T. W. Gissing.

Cichorium Intybus : so abundant that its masses of blue flowers become conspicuous objects in the landscape. *Serratula tinctoria :* frequent. *Carduus nutans :* frequent. *Carduus tenuiflorus :* Dunwich, and near the sea. *Carduus palustris :* common. *Carduus acaulis :* frequent. *Onopordium Acanthium :* Ipswich, and near the sea at Leiston. *Centaurea Cyanus :* not common; chiefly near the sea. *Centaurea Scabiosa :* frequent. *Eupatoria cannabinum :* common. *Artemisia maritima :* Aldborough. *Artemisia Absinthium :* Dunwich. *Filago minima :* Westleton, etc. *Petasites vulgaris :* frequent. *Erigeron acris :* heaths. *Aster Tripolium :* Aldborough, Ipswich. *Senecio sylvaticus :* dry places. *Senecio viscosus :* Aldborough. *Senecio tenuifolius :* frequent. *Inula Conyza :* frequent. *Pulicaria dysenterica :* common. *Chrysanthemum segetum :* not common; chiefly near the sea. *Pyrethrum Parthenium :* waste places. *Jasione montana :*

heaths. *Erica Tetralix :* frequent. *Erica cinerea :* common on heaths. *Calluna vulgaris :* Butley; but not common. *Ligustrum vulgare :* frequent. *Erythræa pulchella :* near the sea. *Chlora perfoliata :* rare; Badingham, and near Ipswich. *Convolvulus arvensis :* common. *Convolvulus sepium :* common. *Convolvulus Soldanella :* Dunwich and Felixstow. *Hyoscyamus niger :* near Landguard Fort. *Solanum nigrum :* frequent. *Verbascum Thapsus :* common. *Verbascum floccosum :* very rare; Dunwich. *Verbascum nigrum :* Westleton. *Veronica Anagallis :* common. *Veronica scutellata :* frequent. *Veronica Buxbaumii :* Badingham. *Pedicularis palustris :* boggy places. *Antirrhinum Orontium :* Theberton. *Linaria Cymbalaria :* naturalized at Framlingham. *Linaria spuria :* Badingham. *Linaria Elatine :* Badingham. *Orobanche minor :* very abundant; and sometimes forked for about three inches from the top. *Verbena officinalis :* Laxfield. *Salvia Verbenaca :* Framlingham, etc. *Origanum vulgare. Calamintha officinalis :* Peasenhall. *C. Clinopodium :* common. *Ballota nigra :* common. *Lamium Galeobdolon :* frequent. *L. amplexicaule :* frequent. *Galeopsis Ladanum* and *Tetrahit :* frequent. *G. Tetrahit, β alb. :* rare; Badingham. *Stachys Betonica :* frequent. *S. palustris* and *sylvatica :* common. *S. arvensis :* frequent. *Marrubium vulgare :* Ipswich and Framlingham. *Scutellaria galericulata :* frequent. *Lycopsis arvensis :* common. *Myosotis palustris :* common. *M. cæspitosa :* frequent. *Lithospermum officinale* and *arvense :* frequent. *Symphytum officinale :* Bodingham and Laxfield. *Cynoglossum officinale :* common. *Echium vulgare :* frequent and very fine. *Primula vulgaris, β elatior :* plentiful. *P. veris :* plentiful. *Hottonia palustris :* near the sea. *Anagallis arvensis :* common. *Samolus Valerandi :* near the sea. *Glaux maritima :* Dunwich, etc. *Armeria maritima :* near the sea. *Statice Limonium :* Aldborough and Ipswich. *Plantago media :* frequent. *P. maritima :* coast. *P. Coronopus :* Ipswich and coast. *Chenopodium Bonus-Henricus :* Ipswich and Glemham. *Atriplex pedunculata* and *laciniata* (?) *:* Aldborough. *Beta maritima :* Aldborough. *Salsola Kali :* Aldborough. *Schoberia fruticosa :* Aldborough. *Salicornia herbacea :* Aldborough, etc. *Polygonum lapathifolium :* waste places, chiefly near the sea. *P. Hydropiper :* frequent. *P. Fagopyrum :* an occasional escape. *Rumex Hydrolapathum :* Framlingham. *Euphorbia Paralias :* Dunwich. *E. exigua :* common. *E. amygdaloides:* frequent. *E. Helioscopia:* frequent. *Mercurialis annua:* abundant in waste places about Ipswich. *Parietaria officinalis:* Framlingham Castle, etc. *Humulus Lupulus:* Badingham. *Listera ovata:* Badingham, etc. *Orchis Morio:* common. *O. pyramidalis, O. latifolia,* and *maculata:* frequent. *Habenaria chlorantha:* Theberton. *Ophrys apifera:* pretty generally distributed, but seldom more than two or three in a place. *Galanthus nivalis:* Middleton. *Allium vineale:* frequent. *Tamus communis:* common. *Colchicum autumnale:* Framlingham. *Hydrocharis Morsus-Ranæ:* near the sea. *Sagittaria sagittifolia:* Ipswich. *Butomus umbellatus:* Framlingham, and occasionally near the coast. *Triglochin maritimum* and *palustre:* near the sea. *Potamogeton densus:* Badingham. *P. gramineus:* Leiston, etc. *P. crispus:* frequent. *P. pectinatus:* Dunwich. *Lemna gibba* and *trisulca:* frequent. *Arum maculatum:* common. *Sparganium ramosum:* not common. *S. simplex:* much more frequent than *S. ramosum. Typha latifolia:* frequent. *T. angustifolia:* Badingham. *Juncus conglomeratus,* and *glaucus:* frequent. *J. maritimus, compressus,* and *cœnosus:* Dunwich. *J. squarrosus:* on most of the heaths. *Blysmus compressus:* Dunwich. *Scirpus lacustris:* frequent. *S. glaucus:* common. *S. maritimus:* common near the sea. *S. sylvaticus:* frequent. *S. pauciflorus:* marshy places. *S. cæspitosus:* Westleton. *Eriophorum angustifolium:* frequent near the sea. *Carex pulicaris* and *stellulata:* not common. *C. ovalis:* frequent. *C. remota:* common. *C. axillaris:* rare; Badingham, near the "Bowling Green" Inn, and at Cransford. *C. arenaria:* abundant. *C. muricata,* frequent. *C. divulsa:* Great Glemham, Middleton, etc. *C. teretiuscula:* salt marshes at Dunwich. *C. vulpina:* common. *C. cæspitosa, acuta,* and *flava:* frequent. *C. glauca:* common. *C. extensa:* rare; Aldborough. *C. distans:* Dunwich. *C. sylvatica* and *pendula:* occasionally. *C. Pseudo-cyperus:* Badingham, and near the sea. *C. pilulifera:* Westleton, etc. *C. hirta:* common. *C. vesicaria, paludosa,* and *riparia:* frequent. *Phalaris arundinacea:* frequent. *Phleum arenarium:* Felixstow. *Alopecurus agrestis:* frequent. *Ammophila arundinacea:* coast. *Arundo Phragmites, Aira cæspitosa,* and *Avena flavescens:* common. *Holcus lanatus* and *mollis:* common. *Triodia decumbens, Melica uniflora,* and *Molinia cærulea:* Westleton. *Glyceria aquatica* and *pedicellata?:* frequent. *G. distans:* near the sea. *G. rigida:*

frequent. *Poa maritima:* Dunwich. *Festuca pratensis* and *gigantea:* frequent. *Bromus erectus, β villosus:* Dunwich. *Brachypodium sylvaticum:* common. *Triticum caninum* and *junceum:* Dunwich, etc. *T. repens, β littorale:* Dunwich, etc. *Hordeum pratense:* frequent. *H. murinum:* common. *Nardus stricta:* heaths. *Polypodium vulgare:* with fine bifid and serrate varieties. *Aspidium aculeatum:* Heveningham, etc. *A. lobatum* and *angulare:* frequent. *Lastrea spinulosa:* Heveningham. *L. dilatata:* Prasenhall. *L. Filix-mas:* with the variety *incisa,* very fine. *Athyrium Filix-fœmina:* East Bridge, Theberton. *Asplenium Ruta-muraria:* Eye Church. *Scolopendrium vulgare:* with several varieties. *Blechnum boreale:* heaths. *Pteris aquilina. Equisetum Telmateia, palustre,* and *limosum. Chara aspera.*

A Few Words on our Indigenous Barbareæ. *By* J. G. Baker.

I had intended before this to have supplemented your observations on *Barbarea* by a few remarks and suggestions relative to the indigenous forms or species that represent the genus in the British Flora.

First there is *B. arcuata* (admitted as a distinct species by the German and French botanists, but now unanimously viewed in Britain as a variety only), which may be known from the normal *vulgaris* by its larger flowers, and slender, horizontal pedicels, and arcuate-ascending or spreading pods.

Next comes *B. vulgaris,* as restricted by Reichenbach, Godron, etc., characterized by erecto-patent pods and arcuate-ascending pedicels, which is by far the most widely diffused form in this country. My notes record its ascent to fully 200 yards in both Teesdale and Wensleydale; and I have also collected it at 300 yards near the summit of the Castlebar rocks near Settle, growing with *Allium complanatum* of Boreau (*A. carinatum,* Smith, not Linn.), an elevation which will justify an average annual temperature of 45° being placed for the boreal limit of the species.

Over and above these, there is a third form, with rigid, erect pods and peduncles, and smaller flowers than either of the preceding, which I suppose to be what is alluded to by Mr. Borrer at page 46 of the fifth volume of the Old Series of the 'Phytologist,' under the name of the "variety *intermedia* of Buxton, in the Manchester Botanical Guide," as presenting "some remarkable differences." This is most likely the variety *sylvestris* of Wahlenberg and Fries, and perhaps also *B. intermedia* of Boreau and *B. angustana* of Boissier; for there cannot be much doubt that the suggestion of Godron, to the effect that some of the supposed species which he has retained, "out of respect for the distinguished botanists who have published them," are mere varieties, is perfectly accurate. I have not been able to see any authenticated examples; but some of my Yorkshire specimens agree very well with the descriptions of *intermedia* in the 'Flore du Centre' and the 'Flore de la France.' The three forms which have been enumerated all agree in having their stem-leaves deeply incised below, and the lateral lobes of their lower leaves considerably more fully developed than in *B. stricta*. But *B. vulgaris intermedia* may be very readily mistaken for this latter by a botanist who is not properly acquainted with the true plant; and it is principally for this reason that I have wished to draw attention to it.

B. stricta grows plentifully in several of the low districts of Yorkshire (not, so far as has been ascertained, ascending into any of the dales), and has been reported also from Northamptonshire, Herefordshire, and Dumfriesshire. It affects precisely similar situations to *B. vulgaris*, and there can be no reasonable doubt (*vide* Suppl. Fl. Yorksh.) of its being equally "a genuine native." The specific name *stricta* was applied by Fries to the plant (*vide* Summ. vol. i. p. 146) as early as 1819. Nine years later, in the *editio altera* of the 'Novitiæ Floræ Suecicæ,' he proposed to change the name to *parviflora*, in order to lessen the risk of its being confounded with the form of *vulgaris* with rigid adpressed pods,* the "variety *intermedia*" mentioned above. But in the meantime "*stricta*" had been adopted by Andrzejovski and others, and in the 'Summa' Fries has consented to return to it again; for, indeed, the principle that it is allowable to change names which have been once imposed, even if more characteristic designations may be substituted, few authorities in nomenclature would be disposed to admit. Whether the plant is permanently and essentially distinct from all forms of *vulgaris* I have not been able, after having seen it growing almost periodically for many years, and gathered for distribution a large number of specimens, to form an opinion with confidence, though inclining to the belief that such is really the case. At different dates, Fries himself has evidently understood it very differently; for whilst in the 'Novitiæ' (1828) he mentions for it only a single station, in the 'Summa' (1846) he gives it a more widely diffused distribution throughout Scandinavia than *vulgaris;* and although, in the 'Novitiæ,' he locates *vulgaris sylvestris "in sylvestro-montanis ad ripas fluviorum Lapponiæ,"* in the 'Summa' he enumerates for Lapland *stricta* only. Undoubtedly its best characteristics, as pointed out by Babington and Arnott, reside not in the fruit, but in the leaves and flowers.

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* "Per plures annos sub *B. stricta* servavi (Bot. Zeit., 1822), sed cum alia adest *B. vulgaris stricta*, parvifloræ nomen magis characteristicum visum fuit."—Novit. Flo. Suec., edit. alt., p. 207.

Reviews.

Journal of the Proceedings of the Linnæan Society of London. Longman, Brown, & Co., and Williams and Norgate.

We are informed in a notice on the cover of the first number of this work, that "it is proposed to issue four numbers annually, as nearly as possible at definite intervals, containing papers on Natural History read before the Society, and not inserted in its 'Transactions.' The Zoological and Botanical Papers will be separately paged, so that either section may be taken separately." This is the nature and object of the publication, and the present portion, viz. the proceedings from November 6th, 1855, to February, 1856, may be considered as a fair specimen of the annual account of what the Society has done and means to do for the promotion of science. The Zoological and Botanical portions are equal in extent; each filling 48 pages. To the former, viz. the Zoological part, there are two plates appended. There is an introductory sheet in which is given an abstract of the proceedings, the list of donations, the election of fellows, and a notice of other routine business. The interesting paper on the Botany of Madeira and Teneriffe, read before the Society in March and April, 1855, is presented *in extenso,* and fills about 34 pages.

The remainder of the botanical part is occupied with Dr. Meisner's account of some new species of *Chamælaucieæ,* and with the commencement of Mr. Kippist's paper on two apparently undescribed species of *Genetyllis,* from South-west Australia. The papers on Zoology we leave for our zoological contemporaries.

Mr. Bunbury's remarks on the Botany of Madeira and Teneriffe is one of the best papers of the kind. The amiable author says, that his "Notes on Teneriffe must be considered as merely supplemental to the excellent accounts of that island by Von Buch, Webb, and Berthelot." In our number for June, 1855, we gave a brief notice of a portion of this paper, and therein expressed a desire to know the dimensions of *Erica arborea.* We can now inform our readers that in favourable localities this Heath attains a height of 40 feet and a circumference of 4 feet. The Phænogamous species of Madeira plants amount to 700 in round numbers, and 480 of these are South-European plants. This our author considers a large and striking proportion. We have not sufficient space for the discussion of this subject, nor for any remarks on the origin of these species, nor on the question of their nativity or introduction.

We find that a great number of the genera is British, or they have representatives in the British Isles. Several species are British, while a few are only doubtfully distinct from the natives or the denizens of these our Isles. Of the Madeira Ferns, 15 at least are found in Britain. *Nephrodium* (Lastrea) *Fœnisecii,* Lowe, is very plentiful. We think we have this species or form in the Orkneys, almost the "Ultima Thule" of Great Britain. Several other Madeira Ferns are widely distributed in Britain, as *Blechnum boreale, Pteris aquilina, Polypodium vulgare, Athyrium Filix-fœmina, Cistopteris fragilis* and *Scolopendrium vulgare.* Our most common Phænogamous plants seem to be absent in these islands of the west, judging from Mr. Bunbury's Lists, if we except *Rubus fruticosus* and *Cytisus scoparius* (common Broom). We extract the following notice of the Chestnut-tree, one of *our* quasi-native species:—"I observed that the sweet Chestnut trees, which are cultivated here and there in the neighbourhood of Funchal, retain most of their leaves through the winter, the foliage being partly green even in January, while those on the mountains are as completely deciduous as in Europe." Our notice of the very agreeable account of the Botany of these interesting islands has occupied so much of our limited space as to compel us to pass by Dr. Meisner's learned paper on the *Chamælaucieæ;* we commend it however to the notice of our readers, and hope they will be as well pleased with it, if they read it, as we have been with the remarks on the Botany of Madeira and Teneriffe.

We wish to point out to the *rédacteurs* of these proceedings a slight obscurity, ambiguity, or linguistic or grammatical blemish, it may be, in their notice of Professor Bentley's abnormal specimens of *Larix europæa, Tanacetum vulgare,* and *Papaver bracteatum:*—"The Professor presented a cluster of flowers of the *Tanacetum vulgare,* in which some of the plants had acquired an abnormal development, apparently from the attack of insects." The grammatical as well as logical antecedent to the relative *which* is *flowers,* not *Tanacetum vulgare;* the latter is but accessory to, or a qualifying epithet of flowers. In plain English, the expression properly construed means "Tansy flowers," in which flowers (understood as the subject to the relative *which*) "some of the plants had acquired an abnormal," etc.; that is, some of the plants had grown *in* or on the flowers. Is this what the relators mean? We do not know. Flowers usually grow on plants, *i. e.* it is their normal position to grow uppermost. But as these Tansies were abnormal productions, did the plants grow on the flowers? We have seen rudimentary plants growing among the flowers composing a head of white clover, and we have seen white shoots from the ovary of a dog-rose; and we do not say that the Tansy exhibited at the Linnæan Society's meeting as above was *not* a plant or a series of plants produced from the flowers. On p. vi. we are informed that a note on a Fungus found in the Fens of Cambridgeshire was read by the Rev. M. J. Berkeley, F.L.S. It would puzzle an Œdipus to tell if the reading was by the Rev. gentleman, or the note written, or the fungus discovered by him. Probably he found the curiosity, wrote the note, and read it to the members of the Society. We are told to look at 'Botanical Proceedings,' p. 52, for the contents, etc. We cannot find p. 52; it is to be reckoned among the future and forthcoming pages. Mr. Bentham's paper on *Loganiaceæ* is stated to be in or on p. 53. We hope the pleasure of reading these pages is also in the future; at all events we are obliged to the Society for the pleasure of reading *this* portion of their Proceedings.

BOTANICAL NOTES, NOTICES, AND QUERIES.

In the Descriptive British Botany, publishing in the 'Phytologist,' it is stated, under the initials of Mr. Irvine, that he has never observed *Isatis tinctoria* (except an occasional straggler) on the west side of the river Wey. It will be agreeable to this accurate and trustworthy investigator of localities (by whose indications many others as well as myself must have been often guided to rare plants) to be informed that this fine plant grew in the utmost profusion in 1849 (and doubtless grows still) in the great chalk-quarry near Compton, on the south side of the Hog's Back, a place easily overlooked by a passing botanist from being masked by a Larch-wood in front.

It is also stated that *Iberis amara* grows in fields in Berkshire—Pangbourne and Streatley. The range of this very local plant is considerably wider than these words would import, as it is also found in Oxfordshire and Buckinghamshire; especially, and most plentifully, in the range of country north of the Thames, from Henley to Maidenhead.

My experience agrees with that of your Tring correspondent (p. 105) as to the botanical poverty of the Chiltern Hills, a fact the more remarkable as the southern portion of the same chalk district is one of the richest in the midland counties. *Alchemilla vulgaris* however grows in the woods of Chequers; and I have found *Paris quadrifolia* in a woody ravine adjoining Stokenchurch Common. *Buxus sempervirens* helps to adorn the steep chalky declivities near Ellesborough, and grows also on the hills between Tring and Dunstable. *Pyrola minor* I have gathered on the same range of hills, further south, near Nettlebed; and in great profusion in various parts of the woody region towards Wycombe and Marlow.

As you have thought it worth while to print a new Surrey locality for *Lycopodium Selago*, which has been found in that county by several botanists, you will perhaps allow me to mention one which I believe not to be generally known. The *Lycopodium* grows in considerable abundance on the east side of a sort of pass through and over Chobham Ridges, leading in the direction of Frimley. The path goes directly through the large field which Mr. Watson, some years ago, pointed out as a habitat of *Arnoseris pusilla;* and in the same field I found, in October, 1849, a moderate quantity of *Linaria purpurea,* a plant of which the indigenousness has been doubted, but this situation closely resembles the continental localities of the plant.

The 'Phytologist' very judiciously directs much of its attention to the geographical distribution of plants. On this subject much may be learnt by the careful examination of a single county, and there are counties and even smaller districts in England which deserve particular notice as forming the transition between two distinct botanical regions, or combining portions of both. The Isle of Wight is an example of the first kind, Surrey of the second. That county, besides its great variety of geological structure and of vegetation as thereon dependent, contains within its narrow limits an eastern and what may be termed a sub-western flora. The domain of the latter is the tract of heath and sand extending from Esher and Moulsey diagonally to Hindhead and Haslemere. While a great proportion of the plants of the eastern region are wanting in this, it possesses many which are not found further east, and is still more distinctly characterized by the abundance of several, of which only stragglers are found in the region of Croydon, Godstone, Reigate, and Dorking. It is the chosen seat of *Apera Spica-Venti; Silene anglica; Hypochœris glabra* (which abounds there, while I have seen it nowhere else in Surrey except a few straggling plants on Reigate Heath); *Erysimum cheiranthoides* and *Marrubium vulgare* (both found near Reigate, but in no similar abundance); *Athyrium Filix-fœmina*, more profuse there than elsewhere; *Myrica Gale; Senecio sylvaticus; Geranium lucidum; Rhynchospora alba;* I believe I might add *Hieracium rigidum*, but the Surrey *Hieracia*, though less numerous, require revision as much as those of Yorkshire. *Campanula Rapunculus* is plentiful in one corner of the district. Among its rarieties are *Campanula patula ; Comarum palustre ;* the two *Elatines, Hydropiper* and *hexandra ; Chætospora nigricans*, which I had the good fortune to rediscover in its old recorded locality, Bagshot Heath ; *Hippuris vulgaris ; Utricularia minor ; Arnoseris pusilla; Linaria purpurea; Leonurus Cardiaca; Allium vineale; Zannichellia palustris ; Ceterach officinarum.*

Has *Calamintha Nepeta* been ever really found in Surrey ? Several botanists have thought they had found it, but by no search in the localities indicated have I discovered anything nearer to it than *Calamintha officinalis*. A *Calamintha* taller than *officinalis*, but with much smaller leaves, resembling those of *Origanum vulgare*, and with a stem not erect, but ascending from a bend near the root, which I believe to be *C. Nepeta*, I have seen in various places on the Continent, among others especially near Rouen ; and this plant grows, or did grow in 1843, by the side of the road from Marlow to Hedsor and Clifden. I last year recognized what seemed the same plant (but did not botanically examine it) between Eynsford and Farningham, in Kent. Perhaps some one among your correspondents, who has attended to the subject, would give your readers the benefit of his experience. J. S. M.

Flora of the Orme's Heads.—Having been fortunate enough to spend six weeks in July and August, 1852, at the village of Llandudno, at the foot of the Great Orme's Head, I am not only able to confirm Mr. Woods's stations for almost all of the interesting plants which he enumerates as natives of that charming spot, but to add many others of scarcely less interest. Indeed when I have enumerated all its treasures, I fancy that the readers of the 'Phytologist' will agree with me in thinking that few spots in our island present features more attractive to the botanist, and, let me add, if he have the misfortune to be a valetudinarian,—which I hope few of the open-air fraternity are,—or the good fortune to be a lover of the picturesque (and what lover of flowers is not ?), he will find the additional charm of health-fraught breezes and scenery the most pleasing in that favoured nook. *Thalictrum minus* abounds about Llech. *Papaver hy-*

bridum grew sparingly in cornfields near Dyganwy. A white flowered var. of *Fumaria capreolata* was clinging to a hedge between Bryn-y-bia and Penrhyn. *Crambe maritima* is undoubedly wild on the cliffs below Gogarth. *Arabis petræa* was plentiful in several parts of the rock. *Saponaria officinalis*, with double flowers about the upper mines. *Arenaria verna*, not uncommon on the rocks on both the Ormes. *Linum angustifolium*, in sandy ground (there called "the Promenade") above Llandudno Bay. *Erodium maritimum*, on the sand-hills near Ty-draw. *Medicago maculata*, sparingly about Gogarth. *Trifolium striatum*, near Dyganwy, on sandy banks. *Hippocrepis comosa*, on the hillside westward of the village. *Lathyrus sylvestris*, in hedges near Llanrhos. *Spiræa Filipendula*, on the hillside westward. *Rosa Forsteri*, Sm., in hedges on the Conway road. *Poterium Sanguisorba*, on the hillside westward. *Pyrus Aria*, on the steep rocks above the village, near the sea. *Sedum dasyphyllum*, on old walls, and at Conway. *Sedum Telephium*, in Gloddarth woods. *Cotyledon Umbilicus*, sparingly on walls and rocks about the village. *Saxifraga decipiens*, Ehrh.?, on the lesser Orme's Head. *Fœniculum vulgare*, plentiful at Dyganwy. *Rubia peregrina*, at Gloddarth, but rare. *Centranthus ruber*, on old walls at Conway. *Lactuca muralis*, on walls and rocks near Bodscallan. *Cichorium Intybus*, common about the village. *Carduus Marianus*, waste places about the village; not so plentiful as the last. *Eupatorium cannabinum*, by the road to Conway, with *Pulicaria dysenterica*. *Gentiana campestris*, frequent on the hillside. *Erythræa littoralis*, Hook., on the shore near Ty-draw. *Convolvulus Soldanella*, on the sand-hills between Ty-draw and Dyganwy. *Hyoscyamus niger*, near Gogarth. *Veronica hybrida*, on one spot behind a low wall of loose stones, just where the south face of the Head begins to bend away to the north-west above Ty-draw. *Scrophularia vernalis* (out of flower), Bodscallan Wood. *Linaria Cymbalaria*, on walls at Gloddarth, near the house. *Mentha viridis*, one plant found near Ty-draw. *Origanum vulgare*, plentiful on the southern slopes of the Head, with *Calamintha Acinos* and *officinalis*. *Lithospermum officinale*, on rubbish-heaps about the mines. *Borago officinalis*, about Dyganwy. *Samolus Valerandi*, very large at Llech. *Chenopodium Bonus-Henricus*, at Gogarth. *Juniperus nana*, Willd. (in fruit) on the southern slopes of the Head. *Spiranthes autumnalis*, plentiful on the southern slope just above the church. *Orchis pyramidalis*, in Gloddarth Wood. *Allium vineale*, on the rocks above the deserted mines. *Elymus arenarius*, on the sandy shore of Llandudno Bay. The following species are said to grow in the localities specified, but I did not fall in with them. *Fedia dentata*, on the rocks above Llandudno. *Mertensia maritima*, on the shore of Llandudno Bay. *Asperugo procumbens*, at Llech, and elsewhere on the rocks. *Viola hirta*, on the rocks. *Sison Amomum*, near Eglwys Rhos. *Dianthus Caryophyllus*, on the town-walls at Conway. *Dianthus deltoides*, on Dyganwy rocks. *Sedum forsterianum*, on the Little Orme's Head. *Cerastium tetrandrum*, on the coast near Llandudno. *Orobanche minor*, on the ruins at Dyganwy and Marl. *Hutchinsia petræa*, common above the mines. *Cochlearia danica*, on the salt marshes near Conway. *Carduus tenuiflorus*, on the rocks above the village. *Inula Conyza*, on dry banks by the river. *Senecio viscosus*, on the shores of the bay. *Listera ovata*, in Bodagon meadows. *Epipactis latifolia*, near Llandudno. For these stations I am not responsible, having borrowed them from an anonymous list in 'The Stranger's Guide to Llandudno.' I may mention here that had Messrs. Pamplin and Irvine halted on their recent trip into North Wales at Penmaenmawr, they would have found it well worth the ascent; I have gathered on the mountain and about its foot, with many less rare plants, *Calluna vulgaris*, with white flowers, *Wahlenbergia hederacea*, *Hymenophyllum tunbridgense*, and *Lycopodium annotinum*. The climb is certainly a very fatiguing one, but the view from the summit is very fine. (N.B.—Let no credulous botanist or tourist fail to take up some drinkable or other. The never-failing spring on the summit is all a myth, at least it failed *us* on a broiling August day, *ergo experto credite!*) The village at the foot is perfectly embowered in Hydrangeas of every hue; I never saw them in such perfection anywhere else. Penmaenmawr is very accessible from Llandudno by omnibus and rail, the whole distance being only some ten miles, I think. HUGH A. STOWELL.

Faversham.

Tragopogon pratensis.—Three specimens gathered in this neighbourhood perhaps answer sufficiently well to the three varieties of this plant. In one gathered on the sea-wall by Faversham Creek, the involucre is often the same length as the florets: *T. pratensis*, Linn. In another from a field on Scurtington Farm, Rodmersham, the involucre is about one-third longer than the florets: *T. major*, Jacq. In the third from the roadside between Ovenscourt and Selling Church, the involucre is *almost* twice as long as the florets: *T. minor*, Fries. H. A. S.

The following list of plants collected *in blossom* on the *4th of January*, 1855, between Perry Wood and Faversham, a distance of four miles, is very remarkable. Will any of your correspondents favour us with its parallel?

1 Ranunculus acris.
2 ,, repens.
3 Capsella Bursa-Pastoris.
4 Sisymbrium officinale.
5 Arenaria serpyllifolia.
6 Cerastium vulgatum.
7 Stellaria media.
8 Ulex europæus.
9 Anthriscus sylvestris.
10 Sherardia arvensis.
11 Scabiosa Columbaria.
12 Apargia autumnalis.
13 Leontodon Taraxacum.
14 Centaurea Scabiosa.
15 Senecio vulgaris.
16 Bellis perennis.
17 Chrysanthemum Leucanthemum.
18 Filago minima.
19 Pyrethrum inodorum.
20 Primula vulgaris.
21 Veronica Buxbaumii.
22 Linaria Elatine.
23 Thymus Serpyllum.
24 Lamium album.
25 ,, purpureum.
26 Ballota nigra.
27 Stachys sylvatica.
28 ,, arvensis.
29 Euphorbia exigua.
30 ,, Peplis.
31 ,, Helioscopia.
32 Poa annua.
33 Dactylis glomerata.

H. A. S.

Will any of your correspondents inform me why an ordinary linen-press should be unsuitable for pressing specimens for the Herbarium? There must be some good reasons against its use, or so obvious a method would surely be employed; yet I never met with it in books or in practice.

H. A. S.

A new Station for Draba inflata.—Found plentifully on a bank opposite to Reading Castle? 27th April, 1855. H. A. S.

Note on Pressing Plants in a Linen-Press.—We have seen several presses for preparing specimens for the Herbarium constructed on principles precisely similar to those on which a linen or cider-press is constructed. The screws however are sometimes iron in the plant-presses. We have never seen a linen-press with iron screws. We believe almost any sort of press will press plants, viz. a bookbinder's laying or cutting-press, a sewing-press, and—but let it not be uttered in Cheddar nor in Cheshire—a cheese-press.

Is there any hope of getting up a "Naturalists' Field-Club" in East Kent? Perhaps the idea only wants to be started? Doubtless the 'Phytologist' has many readers in the county,—what say they? H. A. S.

I know of *Viscum album* (Misseltoe) on *Cratægus Oxyacantha* (Whitethorn), about one mile from Bexley, Kent; and in abundance on *Tilia europæa* (Lime), not far from Tunbridge, in the same county.

G. B. WOLLASTON.

Bulrush (*Scirpus lacustris*).—In the 'Journal of Botany and Kew Miscellany' for January, 1856, among other interesting articles there is one on the "Uses of *Scirpus lacustris*, in South America." In this country (Peru and Bolivia) Mr. Weddell says, "I crossed many of the rivers that intersect this tract (the vicinity of the Lake Titicaca) in singular barks, composed of two great boats or cylinders made of rushes, bound together, and with elevated tapering extremities. This rush is a species of *Scirpus*, nearly allied to our *S. lacustris*." The Editor of the Journal tells us that there is good reason to believe that it is identical with our species. Lieutenant Gibbon, of the United States, in his Exploration of the Valley of the Amazon, in speaking of the Lake Titicaca describes the boats used on these waters in the following terms:—"The Indians navigate the lake in *boalsas*, or boats, made of the lake-rush, which forms the material for both hull and sails. This rush supplies the place of wood, iron, canvas, etc." This fact is illustrative of a passage in the book of Isaiah, chap. xviii., ver. 1 and 2, quoted below: "Woe to the land shadowing with wings, which is beyond the rivers of Ethiopia, that sendeth ambassadors by the sea, even in vessels of *bulrushes* upon the waters, *saying*, Go, ye swift messengers," etc. Vessels of bulrushes appear to us rather mean conveyances for ambassadors. Wood is scarce in the Cordilleras, and no doubt it was equally rare in the lands beyond the rivers of Ethiopia. Even in Egypt vessels of *reeds* were employed on the Nile. Moses's mother, when she could conceal her son no longer, "took for him an ark (vessel) of bulrushes, and daubed it with slime and with pitch, and put the child therein." The word translated *bulrushes* in our *present* version of the Holy Scriptures is *reedes* in the Bishops' translation, and is supposed by learned men to be the *Cyperus Papyrus* (paper-reed). Vessels in which rivers and other waters may be navigated are and have been constructed of either reeds or rushes. SCRUTATOR.

What is the duration of *Plantago Coronopus?* Smith's 'English Flora' says "annual;" Hooker's 'British Flora,' the same; Babington's 'Manual,' "annual;" Purton's 'Midland Flora,' "annual;" Hopkirk's 'Flora Glottiana,' "perennial;" Kittel's 'German Flora,' "perennial." Which is right?

The Box-tree (*Buxus sempervirens*).—Ray says that the Box grows wild on Box Hill, near Dorking, hence the name; also at Boxwell on Cotswold, in Gloucestershire; and at Boxley in Kent, where there are woods of this tree, according to Aubrey. It grows plentifully on the chalk hills near Dunstable.—See Ray, *in loco*. It did not grow at Boxley in Ray's time. Turner says, "It groweth on the mountains in Germany plentifully wild, without any setting; but in England it groweth not by itself in any place that I know, though there is much of it in England."—See Turner's 'Herbal,' *in loco*. For other matter on this point, see 'Gentleman's Mazagine' for 1787. It would be desirable to ascertain the usual habitat of this interesting tree and its horizontal range. SYLVANUS.

The vertical range of *Viola hirta* is a desideratum of the Subscriber's. In the 'Cybele Brit.' the range of *V. odorata* and *V. hirta* are lat. 50–57°, alt. 0–200 yards. JUVENIS.

Todmorden Botanical Society.—We have great pleasure in giving all the publicity in our power to the following notice of a meeting of botanists at Todmorden, in Lancashire.—Manchester has long been famous for the zeal and success of her botanists and florists; their example is warmly recommended to the indwellers of other urban and rural localities. On Monday night the members of the Todmorden Botanical Society held their first meeting of the year at the White Hart Inn, Mr. Abraham Stansfield, of Vale Cottage, in the chair. In the absence of flowering plants, of which there were but few exhibited, the attention of the members was agreeably taken up in examining some beautiful specimens of dried Mosses, a few of which had been collected in the localities of Todmorden, Bolton Abbey, and other places, by Mr. John Newall. The accounts for the past year showed that, after defraying the current expenses, there would be a balance in the hands of the treasurer, with which it was resolved to purchase a valuable collection of Dried Specimens for the Society.

Snowdrops.—On the 25th of January, 1856, we heard, for the first time, "Buy my snowdrops," both said and sung. The Primroses had been cried at least a fortnight or three weeks earlier. CHELSEA.

Communications have been received from

A. G. More, F.L.S.; W. P.; T. M.; John Windsor, F.L.S.; Wm. Borrer, F.L.S.; Wm. L. Lindsay, M.D.; J. Backhouse, jun.; Rev. Henry Birch; C. C.; J. G. Baker; Thomas Moore, F.L.S.; An Irish Lady; R. K.; M. M.

BOOKS RECEIVED FOR REVIEW.

Headland on Poisoning by the Root of Aconitum Napellus.
Natural History Review for January, 1856.
Ditto for April.
Backhouse's Monograph of the British Hieracia.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Plants growing wild in the District of Luxford's 'Reigate Flora,' *omitted both in that Work and in the Supplementary List by* Mr. Holman, *published in the Old Series of the* 'Phytologist' *in September,* 1841. *By* J. S. Mill.

(The district extends from Leith Hill on the west, to Godstone and its neighbourhood on the east.)

Thalictrum flavum. By the Mole below Sidlow Bridge.

Ranunculus parviflorus. On the steepest part of Brockham Hill, in Elder thickets about half-way up the hill, abundantly.

Fumaria capreolata. Near Buckland, by the footpath leading to the chalk hills.

Nasturtium sylvestre. Most plentiful in the dry bed of the Mole, between Mickleham and Leatherhead, and in streams north of Leatherhead.

Barbarea præcox. By the road from Dorking to Capel, near the commencement of the Holmwood.

Arabis hirsuta. Juniper Hill, Mickleham Downs, Box Hill, and other parts of the chalk hills near Dorking. This plant is so characteristic of the Surrey Hills, that its not having been found in the immediate neighbourhood of Reigate is a curious anomaly.

Erysimum cheiranthoides. Copiously in a cultivated field near Doover's Green, to the left of the Brighton road. By the Mole, near the footpath from Betchworth to Brockham. (This plant, common in the north-western half of the county, is rare in the north-eastern.)

Camelina sativa. Among wheat in the open upland fields between Ashtead and Leatherhead, in one spot, plentifully, 1849.

Spergula nodosa. On the grassy slope of Box Hill, plentifully.

Geranium pyrenaicum. About Leatherhead, Dorking, and Reigate, not unfrequent.

Petroselinum segetum. By the side of the Brighton road, on the ascent of Cockshot Hill, sparingly, 1845.

(*Archangelica officinalis,* banks of the Mole, near Brockham, I hesitate to insert, not having seen it there since 1824, and being unable to answer for my having correctly determined it at that distant date.)

Caucalis daucoides. In a cornfield adjoining Norbury Park, on the summit of the hill (1822).

Onopordon Acanthium. Merstham. This fine Thistle occurs in many other parts of the county, but I have not observed it elsewhere in the Reigate district.

Silybum marianum. Corner of Earlswood Common, near the church (1845), but possibly an outcast. This Thistle, being rather frequent in the adjoining parts of Kent, will probably be found permanently established somewhere in East Surrey.

Hypochæris glabra. Sparingly on Reigate Heath, near the race-course (1849). One of the characteristic plants of the north-western district of Surrey.

Campanula Rapunculus. In a shady lane on Cockshot Hill, sparingly (1845).

Verbascum Lychnitis. Sparingly at the foot of the chalk-coomb near Quarry Farm. I have found this handsome Mullein nowhere else below the hills, though not uncommon above them, both in East Surrey and in West Kent.

Mentha rotundifolia. Ashtead Park.

Melissa officinalis. Sparingly in Coldharbour Lane, Dorking (1849). This naturalized plant has now several authentic stations in Surrey. The only one known to me in which it is sufficiently abundant to hold out much promise of permanency, is a bank by the private road which connects the high-road from Kingston to Leatherhead, with the church and village of Chessington.

Chenopodium rubrum (or *urbicum?*). By the road from Reigate to Dorking, near Betchworth; also near Nutfield.

Sagittaria sagittifolia. In the Mole at the foot of Box Hill.

Lemna polyrrhiza. Dorking mill-pond; and ditches in various places.

Potamogeton perfoliatus. In the Mole near Sidlow Bridge.

Potamogeton pusillus, β. major (*compressus,* Sm.). Ditch in the valley of Nutfield Marsh.

Luzula sylvatica. In the wood below Headley Church, towards Walton-on-the-hill.

Scirpus cæspitosus. Earlswood Common.

Carex divulsa. Cockshot Hill and other places.

Carex pallescens. In long grass on the south side of the Merstham ponds (1849). This rich locality, unexplored at the time of the publication of Luxford's Flora, contains *Typha angustifolia* (in the western pond), *Epipactis palustris* (in ditches adjoining), *Astragalus Glycyphyllos* (on the border of Warwick Wood), and *Lathyrus sylvestris* (clustering on the copse itself).

Carex binervis. Broadmoor (Leith Hill).

Carex vesicaria. In the Mole, at Sidlow Bridge.

(*Carex axillaris* has been found near the foot of Colley Hill by Mr. Hanson, of Reigate.)

Avena fatua. Found near Littleton in 1845.

Kœleria cristata. Brockham Hill (1824). Not found (to my knowledge) since that time in the Reigate district; but grows abundantly above the hills, between Warlingham and the Woldingham and Maiden Park district.

Catabrosa aquatica. Ditches at Leatherhead, near the great rise of clear water in the bed of the Mole.

Brachypodium pinnatum. About the rocks of Box Hill; and copiously by the grassy side of the road from Epsom to Headley, between Hundred-acre Field and the great chalk-pit at Ashtead.

Triticum caninum. Hedges by the roadside between Woodbatch and Sidlow Bridge.

Equisetum sylvaticum. In the swampy wood below Coldharbour on the north side of the range (one of the finest Fern localities in Surrey, especially for *Osmunda*).

Equisetum palustre. Frequent in ponds and by wet roadsides. Its omission in Luxford's 'Flora' can only be accidental.

Chara vulgaris. In a clear pool by the footpath from Wray Common to the Merstham Road. On the top of the chalk-hills between Walton and Headley Heaths.

Chara flexilis. In the great rise of water at Leatherhead.

The following are omitted stations of Plants included in the 'Flora,' or in Mr. Holman's Supplementary List:—

Aquilegia vulgaris. On the summit of Box Hill, in the wood; and in other woods, as well as by the sides of fields, near Dorking.

Berberis vulgaris. Near the summit of either Reigate Hill or Colley Hill, in 1826 or 1827: not seen since that time.

Corydalis claviculata. About the base of Boar Hill, and in the swampy wood north of Coldharbour.

Cardamine amara. In the swamp at Whiggey; near Buckland;

by the stream above Wenham Mill; and (sparingly) in various places near Dorking.

Thlaspi arvense. On the summit of Redstone Hill (1848).

Reseda Luteola. Along the foot of the chalk hills towards Godstone.

Viola palustris. In the swamp at Whiggey, copiously. At the lower extremity of Broadmoor, and in the ravine which descends from Leith Hill to Wotton.

Dianthus Armeria. In the vale of Mickleham.

Silene anglica. Border of a field, in the bottom intervening between Walton and Headley Heaths.

Hypericum Androsæmum. Near the cascade of Fillbrook, in the grounds of Tillingbourne, at the foot of Leith Hill.

Hypericum Elodes. In a bog at Coldharbour, and in wet parts of Broadmoor.

Geranium pratense. By the Mole near Mickleham, sparingly.

Radiola Millegrana. Abundant near the summit of Leith Hill.

Rhamnus cathartica. Box Hill, Mickleham Downs, and other places on the chalk hills.

Rhamnus Frangula. In the woody and bushy parts of Boar and Leith Hills.

Genista tinctoria. Found in 1822 near Dorking, on the side next Boar Hill; the exact place forgotten. This plant is rather abundant near the Godstone railway station, and being common in Kent, both above and below the hills, is likely to be found near Reigate; probably in the Weald.

Anthyllis Vulneraria. Chalk hills towards Godstone.

Lathyrus Nissolia. In a shaw near Doover's Green, to the left of the high-road.

Lathyrus sylvestris. This very ornamental plant is not confined to Warwick Wood, but clothes the thickets and hangs in festoons at intervals along the base of the chalk hills nearly to Godstone.

Spiræa Filipendula. Abundant on Mickleham Downs, Box Hill, etc.

Tormentilla reptans. Holmwood.

Rubus Idæus. Summit of Box Hill. Boar Hill.

Rosa rubiginosa. Box Hill. Mickleham Downs. Chalk hills towards Godstone.

Epilobium angustifolium. Boar Hill.

Sedum acre. In dry, bare places on the steep sides of Brockham Hill. Box Hill. Juniper Hill, and the intervening ravine.

Silaus pratensis. Plentiful in meadows near Dorking; Betchworth and Reigate.

Asperula cynanchica. Very common on the chalk hills near Dorking.

Valeriana dioica. Bog near the Mole at Brockham.

Erigeron acris. Lower slopes of Buckland Hill. Box Hill, copiously. Westhumble.

Gnaphalium sylvaticum, β (S. rectum). Betchworth Hill. Kingswood warren. Boar Hill woods.

Serratula tinctoria. Woods about Headley and Walton.

Phyteuma orbiculare. Mickleham Downs. In the great Ashtead chalk-pit, plentiful. On the ridge of the chalk hills between Merstham and Catherham in abundance.

Ligustrum vulgare. Box Hill. Leith Hill woods.

Vinca minor. Copiously, and certainly wild, in a hollow road on the south slope of Park Hill. I have this winter found it in an exactly similar situation (the steep side of a deep cutting in a sandy soil), about a mile from St. Mary Cray, on the road to Chelsfield, in Kent. I notice this circumstance as bearing on the question respecting the indigenousness of the plant.

Chlora perfoliata. Copiously on Box Hill, Buckland Hill, and the chalk hills near Quarry Farm, between Merstham and Godstone.

Menyanthes trifoliata. Bogs about Leith Hill.

Atropa Belladonna. Norbury Park; Brockham Hill; steep chalky side of Box Hill. Profusely about the roots of the hills near Quarry Farm.

Hyoscyamus niger. Lane between Brockham and Godbroke.

Orobanche major. Summit of the hill named Dorking's Glory (1823).

Antirrhinum Orontium. Frequent in the Weald.

Pedicularis palustris. Leith Hill.

Veronica montana. Woods about Boar and Leith Hills.

Salvia verbenaca. Near Leatherhead.

Scutellaria minor. Abundant on Leith Hill.

Nepeta Cataria. Sidlow Bridge. Road to Buckland.

Ajuga Chamæpitys. Brockham Hill, and between Leatherhead and Headley.

Anagallis tenella. Leith Hill abundantly.

Littorella lacustris. New Pond on Earlswood Common.

Euphorbia stricta. By the Mole near Betchworth Park Mill, sparingly (1845). Fields near Woolver Farm, in the Weald. Field adjoining Earlswood Common. Field at the foot of Boar Hill, near Coldharbour Lane. I have some difficulty in believing the identity of this plant with the hairy *Euphorbia platyphylla.*

Orchis Morio. Meadows about Headley, Mickleham, and Reigate occasionally.

Aceras anthropophora. Profusely on Colley and Buckland Hills, and between Box Hill and Juniper Hill.

Ophrys apifera. Copiously in the same localities as the last, and on the lower slopes of the hills near Quarry Farm.

Ophrys muscifera. Same localities, and chalk hills near Godstone.

Epipactis latifolia. Copse to the right of the Merstham Road, beyond Wray Common. Box Hill.

Epipactis purpurata. Grove near Merstham Church, sparingly.

Allium ursinum. Woods of Marden Park most profusely.

Actinocarpus Damasonium. Ponds on Headley and Walton Heaths in abundance.

Butomus umbellatus. In the Mill-pond at Dorking; and in the bed of the Mole between Mickleham and Leatherhead, abundant.

Triglochin palustre. In ditches near the rise of water at Leatherhead.

Lemna trisulca. Pool in a dense thicket a little beyond the Merstham ponds.

Lemna gibba. In Dorking Mill-pond so abundantly as to be piled up in heaps on the edge.

Scirpus setaceus. Earlswood Common. Ravines of Leith Hill.

Carex paniculata. In boggy shaws at Wenham Mill.

Carex stellulata. Leith Hill.

Carex flava. Broadmoor.

Carex pendula. Boggy wood between Reigate Heath and the Buckland Road. Most abundant at the foot of the chalk hills near Oxted.

Carex Pseudo-cyperus. In the pond of Gatton Park (1826 or 1827).

Triodia decumbens. Reigate Heath. Broadmoor. Abundant on the summit of Leith Hill.

Molinia cærulea. Broadmoor.

Nardus stricta. Leith Hill.

Equisetum fluviatile. Profusely by the Merstham Road and in Gatton Park.

Lastrea Oreopteris. Leith Hill, copiously; and about the roots of Boar Hill towards Coldharbour Lane.

Polystichum aculeatum and *angulare.* Lanes in the valley of Nutfield Marsh. In the swampy wood north of Coldharbour, already mentioned.

Athyrium Filix-fœmina. Leith Hill, abundantly. Reigate Heath. Thicket near Littleton. Hedges by the Buckland Road. Swampy wood north of Coldharbour.

Asplenium Trichomanes. On trunks of trees near Betchworth.

Blechnum boreale. Leith Hill, Boar Hill, etc., copiously.

Osmunda regalis. Foot of Boar Hill (north side). In the swampy wood north of Coldharbour, forming large and tall thickets visible at a great distance.

The Sorb-tree *of Wyre Forest.*

Sir,—I have read with some interest the notices on the old Sorb-tree of Wyre Forest; and I am sorry that I cannot acquiesce in the conclusion of gentlemen for whom I have the highest respect, and who are much my superiors in learning, ability, and position in society.

I cannot see what inducement a recluse could have had to carry a tree all the way from Aquitaine to near the middle of England; it could not have been for the purpose of food, for if (as stated by Mr. Loudon) the Sorb-tree takes two centuries to attain maturity, the recluse would have been gathered to his fathers long before the tree was able to render him much return for all his labour; and besides, the tree would have been dead before he had completed half his journey, for we cannot suppose that he had the roots very securely packed.

Numerous examples in British Botany may be quoted of plants which in bygone times were comparatively plentiful that are at the present time struggling for an existence. One example we have in the *Asplenium fontanum* (Phytol., ix. 221); and if a species is drawing towards extinction some one individual must be the last of its race. I do not think that it is going too far to assume that *Pyrus domestica* may have been as plentiful as *P. torminalis* is at the present time; and perhaps the old Sorb-tree may be the *omega* of its species in this country in a wild state. The difficulties which this species has had to contend with may have been greater than would appear upon a superficial view of the subject, and some of these I shall endeavour to point out. To begin with its reproduction, which must be from seed, for I believe the Pear is the only British species in the Order that produces suckers; and it is an established fact known to cultivators, that all the trees in the Order possessed of a hard endocarpium take two seasons, or until the covering is decayed, to vegetate; and that in such as the Apple, the Pear, and perhaps the Sorb, the seeds must be set free, or the acid generated by the decomposition of the pulp destroys their vitality. But if some seeds should survive these difficulties and vegetate, they would be liable to be overgrown and smothered if in a thick wood, or bitten off by ruminating animals if in a more open situation, and so perish in the first stage of their existence. If we take into consideration the system of management of woods in that locality, we shall find still greater obstacles to the development of the species.

It is customary, when the underwood has attained a certain height and strength, to lop it all off near to the ground; and as *P. torminalis* is much in request amongst the natives for flails, beetle-heads, mallets, etc., and that a maiden stem is more prized than one growing from a stump previously lopped, it is probable that *P. torminalis* will in aftertime share the fate of its congener, whose smaller plants have, according to my ideas, disappeared from the above circumstances, or some similar ones. It may be added, that trees of the Order *Pomaceæ*, and of the Orders nearly allied, are much more tenacious of lopping or pruning than are trees of the Order *Amentaceæ*, or the Orders allied; the former, if lopped, are shy in putting out young branches again, whilst the latter break out again most freely.

I think that the observations of your correspondent "G." are somewhat applicable to the present subject. May not France be the nucleus of the species, and the Forest of Wyre its furthermost radius? It appears to me not unlikely that the species may hereafter be discovered upon a tract of country or chain of hills leading from the Forest in a southerly direction through a part of Worcestershire and a part of the adjoining county of Hereford. The rocks are for the most part limestone, abounding in organic remains, and the vegetation such as we frequently see upon chalk. *P. torminalis* grows more or less plentifully upon the whole district, and no doubt many interesting discoveries would reward the researches of the botanist, a great portion being probably unexplored ground: Clouse-top Hill, Abberley Hill, Woodbury Hill, Barrow Hill, Ankerden Hill; cross the Teme, Knightwick, Alfrick, Suckley, Cradley, Mathon, Colwall to Ledbury, about thirty miles long, and two to eight in breadth.

John Lloyd.

On some Uncommon Plants observed at and near to Tunbridge Wells, Kent, *in* 1855. By A. G. More, F.L.S.

(*Continued from page* 295.)

Trifolium medium. Fisher's Common. Hurst Wood. Camden Park. Hedge-banks in several other places; quite frequent.

Hypericum Androsæmum. In various localities. Not scarce; but nothing like *H. anglicum* was observed.

Tragopogon minor (of Fries) was the only form noticed. Is not *T. pratense* a chalk plant?

Hypochœris glabra. When dissecting some specimens from Tunbridge Wells Common, I found the first head had the fruits of *H. Balbisii,* but the next those of the normal form, and some were intermediate.

Barkhausia taraxacifolia. This plant (for which only one station was known in 1846) is now to be gathered in hundreds on the heaps of rubbish excavated from the cutting at the north side of the town. It has also become dispersed as a weed along roadsides and in cottage gardens round Tunbridge Wells, but only sparingly. I think too I saw a few of its rosettes under a wall at Tunbridge.

Hieracium. A fine set of the commoner lowland forms may be collected at Tunbridge Wells, the genus being well represented, both on the open heaths, and also in the woods. I noticed that *H. murorum,* the earliest flowerer, was in bloom first at the end of June, and then, after a considerable interval, again flowered much less abundantly in the late autumn.

B. *Cichorium Intybus.* A few plants by the roadside at Fordcombe Green.

Carduus acaulis. Sparingly close to Southborough.

[*Pyrethrum Parthenium.*] Only in hedges, and by roadsides close to, and evidently derived from, cottage gardens.

Habenaria chlorantha. Morant's-court Hill (chalk).

Habenaria bifolia. Common on the forests (sand).

Listera Nidus-avis. In the Twenty-acre Wood near to Camden Park.

B. *Epipactis latifolia.* Hurst Wood. Wood near Powder-mill Lane, and in other places.

Euphorbia platyphylla. Near Southborough, but very small in size.

A. *Carex bœnninghauseniana.* Very sparingly, and stunted, in a single station a little north of Tunbridge Wells.

Carex lævigata. Quite frequent in wet copses and shady marshy hollows.

Carex pendula. Near the pond in Camden Park; also very fine near Tunbridge, etc.

Carex Pseudo-cyperus. Plentiful and of great size in the pond in Camden Park.

Carex vesicaria. Border of the mill-pond at Broomhill. Also in the pond in Camden Park.

I could not find *Carex fulva, C. intermedia, C. stricta,* nor *Schœnus nigricans.*

Bryonia dioica. In some plenty on Morant's-court Hill. Not observed nearer to Tunbridge Wells.

Has this plant any affinity for a calcareous soil?

[*Castanea vulgaris.*] This is a favourite for hop-poles, and therefore quite frequent in copses and hedges.

Carpinus Betulus. Near the tollgate at the foot of Riverhill. Wild?

A. *Anacharis Alsinastrum* is now to be seen in great profusion by the mill at Riverhead. The miller first noticed it last spring, and it has since increased to such an extent that the mill-dam is at present quite choked with its matted stems. All the efforts of laborious raking have proved insufficient to keep it down. In this station, as in many others, the water-pest may have been planted for an experiment; but it is hoped that no one who reflects upon the mischief and damage caused by such a weed will aid to extend an evil for which as yet we do not know any effectual remedy.

Juniperus communis. The abundance of fine examples of this elegant shrub upon the common at Southborough plainly shows it is not on chalk only that it flourishes.

A. *Atriplex deltoidea,* Bab. This, which is treated as the type of *A. hastata* by Grenier and Godron, was sufficiently abundant by the roadsides at the outskirts of Tunbridge Wells.

A. *Atriplex erecta,* Huds., was fully as common, if not more so, than *A. angustifolia.*

Lastrea spinulosa, Presl. There is a peculiarity in this Fern which I have not seen noticed. From the examination of a considerable number of roots, it has appeared to me that a barren frond is very commonly evolved from the same crown, and alongside of the ordinary fertile one. This barren frond has quite a different form, and approaches *L. uliginosa* in its decurrent pinnules, while the breadth of outline reminds one of *L. dilatata.* It is usually thrown up in autumn, and occasionally bears a few sori, so that there is not that clear line of distinction here between the two kinds as there is in its allies *L. uliginosa* and *L. cristata.* To myself it appears that this occurrence of a sterile frond upon *L. spinulosa* bears in a most interesting manner upon the specific identity of all three Ferns as advocated by Mr. Moore of Chelsea.

As regards the sori of the fertile frond too, they are by no means always absent from the lower pinnæ, and in luxuriant specimens depart considerably from the two-ranked order which has been employed as a character to distinguish the species. The scales also varied so far as this, that in the yellowish form which grows in the open bog, and approaches nearest to *L. uliginosa,* they were scanty and blunt, with a little slender point; but in many plants gathered in shady situations there were abundant scales, and these tapering to a gradual point, though still with a pale centre, and less strictly acuminate than in *L. dilatata.*

Lastrea Filix-mas. Of this variable species the form called "*incisa*" is very common about Tunbridge Wells, especially in shaded localities, and often presents when luxuriant an aspect much resembling one of the spinulose sections of *Lastrea;* but in the Isle of Wight I have also gathered a state of this same "*incisa*" which had all the slender and delicate habit of *Athyrium Filix-fœmina* or *Polystichum angulare,* while at the same time its stipes and rachis exhibited the same abundance of narrow reddish scales as the variety "*Borreri.*" This is mentioned merely to show that the copious clothing of scales is not necessarily an accompaniment of the truncate pinnule, though this is most usually the case. It may also be as well to notice here that both *Lastrea Oreopteris* and *L. Thelypteris* were found near Tunbridge Wells, with their pinnules in the first distinctly, and in the latter slightly, notched or serrated; and I have often met with the same thing in *Ceterach.*

The variety "*Borreri*" (or *paleacea*) we gathered in several localities, mostly along streams, and in somewhat peaty soil exposed to the light.

Equisetum sylvaticum. Profusely by the side of the stream and in the wetter spots of Jack's Wood.

Plants found in the Neighbourhood of Settle, Yorkshire, *omitting some of the very common ones. By* John Windsor, F.L.S., F.R.C.S., etc.

(*Continued from page* 263.)

Mentha sativa, var. *a. vulgaris* (Babington). Waste ground by the river Ribble, below the Long stream.

Mentha sativa, var. *β. M. rubra* (Bab.). By Giggleswick Beck. Waste ground by the river Ribble, below the Long stream.

Mentha sativa, var. *γ. M. gentilis* (Bab.). Waste ground below Birkbeck's Weir; and also below the Long stream, etc.

Mentha gracilis (*pratensis* of Babington). By the side of Giggleswick Beck.

Mentha arvensis. Cornfield on the left-hand between Stackhouse and Little Stainforth. Near Cappernhouse, by Malham Tarn. In Giggleswick, etc.

Mentha rotundifolia. Banks of the Ribble, near the old snuff-mill by Mill Island. July 1832. (*Mr. J. Howson, jun.*)

Mentha rotundifolia, var. *crispa.* Tarn Lane, Giggleswick. 1832. (*Mr. J. Howson, jun.*)

Lamium incisum. Ribble-side at Cammack. Longcliffe.

Lamium amplexicaule. Upper Settle Green.

Galeopsis Ladanum. About the lime-kilns, below Giggleswick Scar.

Galeopsis versicolor. Cornfields about Close House. Rathmell, etc.

Stachys arvensis. Occasionally met with.

Clinopodium vulgare (Sm.).—*Calamintha Clinopodium* (Bab.). Kelkowe. Giggleswick Scar, etc.

Origanum vulgare. Kelkowe. Giggleswick Scar. Stackhouse. Mains, etc.

Origanum vulgare, var. *flore albo.* Hedge on the side of waste ground below Birkbeck's Weir.

Thymus Serpyllum (Thymus Chamædrys). Near Giggleswick Tarn. On Giggleswick Scar, etc.

Scutellaria galericulata. In a ditch about a mile from Eldroth.

Bartsia alpina. Between Malham Tarn and Kilnsey. (*Mr. J. Tatham.*)

Melampyrum pratense. Common in woods about Settle.

Lathræa Squamaria. Occasionally met with in the woods near Settle.

Pedicularis palustris. About Giggleswick Tarn, etc.

Pedicularis sylvatica. In the same situation.

Linaria vulgaris. Mill Island. Pasture above Upper Settle.

Scrophularia Ehrharti. Roadside near Gisborne.

Orobanche Hederæ (if not *O. rubra*). A single specimen of this I found under the rocks, on the east side of Malham Tarn, in 1802; and in 1811 a single specimen, also under Attermire Cove.

It is not improbable that the rocks under which these plants were found had been formerly covered with Ivy, and these solitary specimens were only the remains of what were once more abundant. But this, I admit, is mere conjecture.

Draba incana. On Highhill, Richardson's Scar, and other hills near Settle.

Draba muralis. Under Malham Cove, and on walls in Malham. Awes Scar, near Malham Tarn. About Dale Head, near Penygent. On the eastern end of Kilnsey Crag.

Hutchinsia petræa. On the higher part of the farthest east cleft in Awes Scar, near Malham Tarn. On a ridge of Malham Cove.

Thlaspi alpestre. On the north-east of open Highhill. Cliffs of rocks about Richardson's Scar. Stackhouse Scar. Attermire Rocks. Very plentiful by the lead-mines betwixt Stockdale and Malham, and in a field between Kettlewell and Moor-end. I have seen it on the Scars above the Ebbing and Flowing Well, where Curtis remarks that he had looked for it in vain.

Although this plant varies somewhat in form, in the stalk being simple, or more or less branched, etc., yet I respectfully submit whether the *T. alpestre* and *T. virens* of Babington, notwithstanding his general accuracy and very high authority, may not really be only slight varieties of the same species?

Thlaspi perfoliatum. I have often looked in vain for this plant; but in the year 1801 or 1802 Mr. John Carr, of Stackhouse, showed me a single specimen which he had met with near there, and which really appeared to be this plant.

Cochlearia officinalis. Banks of the Ribble. Mill Island, etc.

Cochlearia officinalis, var. *grœnlandica.* Top of Highhill, and other mountainous pastures near Settle.

Iberis amara. A single specimen, found apparently wild on the on the right-hand side of the road betwixt Giggleswick and High-ridge. Found very plentifully in the waste ground below Birkbeck's Weir, but very doubtful if wild.

Cardamine impatiens. Kelkowe, below the greater Cave. About the lime-kilns on Giggleswick Scar. Cavehole Wood. Rocks a little to the north of Richardson's Scar. Loose stones north of Attermire Cave.

Cardamine amara. Banks of the Ribble, nearly opposite Settle, and on waste ground below Rundley-bridge Mill plentifully.

Nasturtium sylvestre. In a moist grassy place in the waste ground below Birkbeck's Weir.

Nasturtium terrestre. Not uncommon about Settle.

Barbarea præcox. Several places about Settle.

Arabis hirsuta. About Kelkowe Cave. Ribble-side, etc., near Settle.

Erodium moschatum. On Upper Settle Green.

Geranium phæum. Near Park House, not far from Kirkby-Lonsdale (rather beyond the limits assigned to this Catalogue; but I may add that I found it apparently truly wild on the skirts of a wood betwixt Kendal and Burneside).

Geranium sylvaticum. Mill Island. Major Spring's. Wood near Longcliffe Place. Meadows near Little Stainforth, etc.

Geranium pratense. Common on roadsides, etc., near Settle.

Geranium lucidum. Walls, etc., about Settle. Common.

Geranium columbinum. At the foot of Malham Cove.

Geranium sanguineum. Kelkowe. Giggleswick Scar. Lord's Wood. Malham Cove, etc.

Malva moschata. Field just above Settle Bridge.

Fumaria claviculata. Crags. South end of Craven Bank.

Genista tinctoria. About Giggleswick Tarn, etc.

Genista anglica. Pastures about Long-gill. Roadside between Sheepwash and Rathmell Moor.

Ononis arvensis. Ribble-side above and below Settle Bridge. Pasture opposite Settle. Old lime-kilns.

Anthyllis Vulneraria. Kelkowe. Lord's Wood, etc.

Orobus tuberosus. Lodge Gill. Kendal's Gill. Cleatop Parks, etc.

Vicia sylvatica. Plentifully on the edge of the rivulet just above Hanlith Bridge, near Kirby. Malhamdale.

Hippocrepis comosa. Kelkowe. Giggleswick Scar. Lord's Wood. Stackhouse Borrins. Highhill. Rocks above Malham Tarn. Malham Cove, etc.

Melilotus officinalis (Babington). Waste ground below Birkbeck's Weir.

Trifolium minus. Right-hand side of the road between Cotteral Hall and Giggleswick Tarn.

Trifolium procumbens. Kelkowe, and other places near Settle.

Trifolium filiforme. Foot of Giggleswick Scar, near the Ebbing and Flowing Well.

Trifolium medium is occasionally met with, but is often mistaken for *T. pratense*. Curtis describes it as growing in Skirrith, and other mountainous pastures and woods in the north, most plentifully.

Lotus corniculatus. Common.

Lotus major. Common.

Hypericum montanum. In the lower part of Helk's Wood, near Ingleton.

Several of the other species of *Hypericum*, as *quadrangulum*, *perforatum*, *humifusum*, *hirsutum*, and *pulchrum*, are common about Settle.

Tragopogon pratensis. Castleberg. North Fields, and meadows near Rundley bridge.

Lactuca muralis. Kelkowe. Giggleswick Scar. Roadside near the Ebbing and Flowing Well.

Leontodon hispidum. Very common, as on Highhill, Mill Island, etc.

Thrincia hirta. On Highhill.

Apargia autumnalis. Below Settle Bridge, etc.

Crepis virens. Common about Settle.

Crepis paludosa. Not uncommon on the banks of the Ribble. Mill Island, and other places about Settle.

Crepis succisæfolia. This plant, not previously, I think, detected in England, I first found plentifully in Major Spring's Wood, near Settle, in the year 1811. Mr. John Tatham has since found it in Stainforth Wood, a continuation almost, of the same range.

Hieracium. Whilst residing at Settle I collected as many species or forms of this genus as I happened then to meet with, and feeling a difficulty in determining their names, they were submitted to the inspection of Mr. J. Sowerby, sen., and Mr. Forster, about the year 1810 or 1811; and I subjoin the names, some of them interrogatively. Mr. J. Tatham has since been able to make some additions to them.

Hieracium Pilosella. Frequent about Settle.

Hieracium villosum. On second ridge of rocks on Ingleborough (about where *Saxifraga aizoides* grows), but sparingly;

differs from the common form of *Hieracium murorum* by the rigidity of the whole plant, greater thickness of its leaves, citron-colour of the flower, white hairs of the calyx, etc.

Hieracium cerinthoides? or *inuloides*. Ouster-Bank Wood, between the footpath and the River Ribble, *Mr. J. Tatham.*

Hieracium prenanthoides. Hesleden Gill and Stainforth Force, near Settle, *Mr. J. Tatham.*

Hieracium anglicum or *Lawsonii*. Mill Island? Rocks near Attermire Cave. (Stainforth Force Rocks, below the Fall, *Mr. J. Tatham.*)

Hieracium murorum (or *cæsium* of Bab.). Near Settle Bridge. Mill Island. Cavehole Wood, etc.

Hieracium murorum, var. *pilosissimum*, if not *H. villosum* or *Lawsonii* or *pulmonarium*, as marked interrogatively. Rocks near Attermire Cave.

Hieracium murorum, var. *hypochœridoides*. In many places about Settle, as near Attermire Cove. Malham Cove. Awes Scar. Giggleswick Scar. Rock at Stockdale Edge, etc.

Hieracium sylvaticum, or *H. vulgatum* of Babington. Mill Island. Plentiful on hillocks by the side of Giggleswick Tarn, etc.

Hieracium rigidum. Attermire Scar, near Settle. (*Mr. J. Tatham.*) (Found in several places near Manchester, as Timperley, Withington, etc., *J. W.*)

Hieracium sabaudum, or *H. boreale* of Babington. Not uncommon, as in Mill Island, banks of the Ribble, etc.

Hieracium umbellatum. Bridge between Settle and Giggleswick, *Mr. J. Tatham.*

Hieracium Lapeyrousii, or *Hieracium iricum* of Babington. Mill Island.

Hieracium intermedium or *conjunctum*. An intermediate form between *H. sabaudum* and *H. rigidum*, found by *Mr. J. Tatham*, near the water at Brockhole Pasture, on the road to Lodge, and another intermediate form at Lodge Gill.

Hypochœris maculata. The spotted varieties of the *Hieracium* growing near Attermire Cave and about Gordale, etc., seem to have been mistaken for this plant; which however I believe I have seen growing plentifully in steep inaccessible places at Humphrey Head, near Cartmell Wells, Lancashire, a spot much resembling the Great Orme's Head, where this plant also grows, along with others found in both places, as *Heli-*

anthemum canum, Spiræa Filipendula, Veronica spicata (var. *hybrida*), etc.

Carduus heterophyllus. Wood between Settle and Stackhouse. Stackhouse Borrins. Meadow near Feizor, etc.

Carlina vulgaris. Highhill. Stackhouse Scar. Richardson's Scar, etc.

Eupatorium cannabinum. In several places near Settle, as Kelkowe, Kendal's Gill, etc.

Antennaria dioica. About Giggleswick Tarn. Giggleswick Scar, etc.

Gnaphalium rectum (*sylvaticum,* Bab.). Several places about Settle, as in Meerbeck Woods. Roadside between Giggleswick and High-ridge.

Senecio sylvaticus. In a few places near Settle.

Senecio tenuifolius (*erucifolius* of Bab.). Roadside near Rundley Bridge, and Roadside near Kelkowe.

Senecio saracenicus has been found about Clapham and Ingleton; but the plant from which the figure in 'English Botany' was taken I found near Kirkby-Lonsdale.

Inula dysenterica. In a few places near Settle.

Solidago Virgaurea. About Giggleswick Tarn, etc.

Solidago Virgaurea, var. γ. *cambrica.* Foal-foot, Ingleborough.

Centaurea Scabiosa. In several places near Settle.

Some account of the Botany of Wyre Forest *and surrounding parts of the Country. By* GEORGE JORDEN.

(*Continued from page* 286.)

I wish to say something concerning this far-famed tree, *Pyrus domestica.* There is no doubt but it was planted here ages past. I have diligently examined the spot. There are sufficient evidences of cultivation,—a nearly obliterated appearance of a ditch enclosing a small garden, including this tree, containing a bit of *Ligustrum vulgare,* and another of *Prunus domestica, Ribes Grossularia;* these are found nowhere else in Wyre Forest. Searching amongst a heap of loose stones, I found the remains of a wall built with small stones cemented with mud, evidently at some time a human residence, notwithstanding the seclusion and wildness of the spot. This tree would at this time have been in a flourishing state, had it not been so shamefully mutilated by rapacious visitors. The wood of this tree is very hard; the fruit is not edible in any state, it is so very astringent; it so astringes the mouth and *fauces* as to render it next to impossible to swallow a particle of it. It is very probable that this tree, or the fruit, came from Normandy originally.

Now away from the shades of the forest, away to the mountain, the moor, and the mead, to seek for fresh floral treasures, and inhale the fresh breezes that float on their surface, and leave the perplexing brake and treacherous bog behind.

Now first I must stand for awhile in amazement on the basaltic columns of Titterstone Clee, to gaze on the surrounding wonders. The atmospheric pressure lessened, and the mind freed from care, the spirits become buoyant, as though I could soar into the regions of space. But my business is on *terra firma.*

The first object of attraction is the mighty wreck of masses of basalt, of all shapes and sizes, strewn abroad in every direction in the wildest disorder, and around the mountain's base, and also buried in the rich vulcanized soil everywhere. This hill, as well as its neighbour the Brown Clee, were upheaved at the same time out of a plain, probably when it was submerged beneath the ocean. The outbreak of this volcanic matter was through the outskirts, or the thinner portion of the extensive old red sandstone strata, which is distorted and shattered for many miles around, where many upheavals and slight outbreaks are observable.

It would afford much more pleasure to botanical research if some knowledge of geology was acquired. It is exceedingly interesting to observe the stratal harmony of plants where they are planted by the hand of Nature, their adaptation to the different soils, elevation, temperature, suitable for their perfect development; it is highly valuable for all vegetable culture, whether in the field, garden, orchard, or wood. The different strata in this district consisting of basalt, devonian, or old red sandstone, calcareous and siliceous grit, consequently a difference in its flora.

Amongst the masses of basalt around the summit of the mountain, whose elevation is about eighteen hundred feet, there I find *Saxifraga hypnoides, Sedum Telephium, S. purpureum* (here those two Sedums grow on the same spot; between them there is a striking difference), *Sedum acre, S. forsterianum, Juncus squarrosus* in profusion; *Lycopodium Selago, Allosorus crispus, Cystopteris fragilis, Polypodium Dryopteris, P. Phegopteris, Lastrea Oreopteris, L. dilatata.* Towards the base of the hill, *Polystichum aculeatum, P. angulare, Athyrium Filix-fœmina,* var. *F. convexum,* in great profusion over an extensive locality; *Botrychium Lunaria, Ophioglossum vulgatum, Genista anglica, Triglochin palustre, Viola lutea, V. palustris, V. hirta.* From remnants of the aboriginal forests left remaining here, it appears that Alder, Hazel, and Ash predominated over an extensive tract, exceedingly luxuriant, particularly on the basaltic and old red sandstone strata; the Oak plentiful, the only species *Quercus Robur.* The Alder spreads itself over the pastures so profusely as soon to regain its former dominion if not extirpated. Leaving this locality, and descending to the calcareous and siliceous grit at Oreton, Farelow, and adjacent parts, here I find the following species:—*Helleborus fœtidus, Hyoscyamus niger, Orchis Morio, O. pyramidalis, Myrrhis odorata, Adoxa Moschatellina, Mentha rotundifolia, Cynoglossum officinale, Cotyledon Umbilicus, Habenaria albida, H. bifolia, H. viridis, Peplis Portula, Verbena officinalis, Teucrium Chamædrys,* on a wall at Oreton; *Poterium Sanguisorba, Anagallis tenella, Conium maculatum, Inula Helenium, Narthecium ossifragum, Gentiana campestris, G. Amarella, Geranium phæum, Geum intermedium, Anthyllis Vulneraria, Eleocharis cæspitosa, Linaria Elatine, Artemisia Absinthium,* in great abundance on the limestone strata; *Linaria minor, Erigeron acris, Eriophorum angustifolium, Eriophorum vaginatum,* very abundant; *Avena fatua, Lolium temulentum, Rhynchospora alba, Petasites vulgaris,* very abundant by rivulets and in meadows, and up the base of the mountain to a considerable elevation; *Rosa villosa,* plentiful; *Rhamnus cathartica, R. Frangula, Chrysosplenium alternifolium, C. oppositifolium, Reseda Luteola, Prunus Padus, P. insititia, Chlora perfoliata, Polygonum Bistorta, Colchicum autumnale.* This plant has become a troublesome pest in these parts of the country; it has been greatly on the increase for many years in the pastures; many cattle have from time to time died from eating it, so that some valuable pastures have been submitted to the plough again as an eradication; it prefers a calcareous soil, but will thrive in most others if not too wet. *Carlina vulgaris, Pinguicula vulgaris.*

Bewdley and the neighbouring localities, Blackstone, Warshill, Habberley, Hartlebury, Dowles, banks of the Severn, etc.:—*Acinos vulgaris, Adoxa Moschatellina, Allium ursinum, A. vineale, Ægopodium Podagraria, Allium oleraceum, Anthemis arvensis, A. nobilis, Matricaria Chamomilla, Anthriscus vulgaris, Acer Pseudo-platanus:* this tree is now fully naturalized in this part of the country. It was probably first introduced by the Normans after the Conquest, and cultivated for the number of useful utensils which were manufactured from its wood when our ancestors ate their food out of trenchers, and their porridge out of bowls and piggins, which were largely manufactured by the Welsh, and were brought to Shrewsbury, which was a great mart for this ware: these utensils may now be often seen in old dwellings. *Arenaria rubra, Aspidium Oreopteris, Scolopendrium vulgare, Asplenium Trichomanes, A. Ruta-muraria, Adiantum nigrum, Athyrium Filix-fœmina, Lastrea dilatata, L. Oreopteris, Polystichum aculeatum, P. angulare, Grammitis Ceterach, Astragalus Glycyphyllos, Bidens cernua, B. tripartita, Butomus umbellatus, Calamintha officinalis, Campanula latifolia, C. patula, C. Trachelium, Botrychium Lunaria, Cardamine impatiens*: the stratal adaptation and attachment of this plant is worthy of notice, as showing the stratal affinity of some plants more than others: on two wooded knots, one on the left, the other on the right bank of the river Severn; the one called Warshill, the other Stagborough Hills. They consist of a highly ferruginous conglomerate of water-worn and partially water-worn fragments, of various sizes, of a kind of quartzose series. Those woods are felled once in about eighteen years, when this plant springs up in enormous quantities, but lessening in quantity the more the wood grows, till the next fall, when scarcely a plant is to be found, then after the fall it springs again, as before mentioned. This I have witnessed three successive times. I have rarely seen this plant anywhere else in the neighbourhood. I believe that seeds retain their vitality longest in their adapted strata. *Carex paniculata, C. divulsa, C. remota, C. strigosa, C. Pseudo-cyperus, C. hirta, C. muricata* (this *Carex* is probably the only one that may be cultivated to advantage on barren, sandy soils, where no useful grasses will thrive; when once established, it will remain for very many years; it may be propagated from offsets, or by sowing the seed; sheep are fond of it); *Carlina vulgaris, Cerastium aquaticum, Chenopodium Bonus-Henricus, C. polysper-*

mum, C. rubrum, Chrysanthemum segetum, Comarum palustre, Coronopus Ruellii, Corydalis lutea, C. claviculata, Cotyledon Umbilicus, Cynoglossum officinale, Dianthus deltoides, Dipsacus pilosus, D. sylvestris, Doronicum Pardalianches, in several places on the banks of the River Severn. *Echium vulgare, Epilobium angustifolium,* var. *brachycarpum, E. roseum, Erigeron acris, Erodium maritimum, Euphorbia exigua, Fedia dentata, F. olitoria, Fraxinus heterophylla;* the fruit of this variety I have frequently planted, when about one in ten truly follows the original variety, the rest as truly follow *Fraxinus excelsior. Galium Mollugo, G. verum, Geranium lucidum, G. columbinum, G. pratense, G. pyrenaicum, Helosciadium inundatum, H. nodiflorum, Hordeum pratense, Humulus Lupulus, Hyoscyamus niger, Hypericum Androsæmum, H. montanum, H. dubium, H. pulchrum, Jasione montana, Lathræa Squamaria, Lepidium campestre, L. Smithii, Ligustrum vulgare, Linaria Cymbalaria, L. Elatine, L. minor, Lithospermum arvense, L. officinale, Lycopodium inundatum, Lycopsis arvensis, Lycopus europæus, Lysimachia vulgaris, Lythrum Salicaria, Marrubium vulgare, Melilotus officinalis, Mentha Pulegium, M. sylvestris, M. rotundifolia, M. rubra, Menyanthes trifoliata, Mœnchia erecta, Myosotis collina, M. sylvatica, Narcissus biflorus, N. Pseudo-narcissus, Nardus stricta, Galanthus nivalis, Neottia spiralis, Nepeta Cataria, Nuphar lutea, Nymphæa alba, Œnanthe crocata, Œ. fistulosa, Onopordon Acanthium, Orchis latifolia, O. Morio, O. maculata, Ornithogalum nutans, Ornith. umbellatum, Stachys palustris, Orobanche major, Papaver Rhœas, P. dubium, P. Argemone, Parietaria officinalis, Paris quadrifolia, Polygonum Bistorta, Potamogeton crispus, P. perfoliatus, Potentilla argentea, Poterium Sanguisorba, Sanguisorba officinalis, Radiola Millegrana, Ranunculus parviflorus, Cerastium arvense, Ranunculus sceleratus, Rumex maritimus, Sagittaria sagittifolia, Salix Helix, Salvia verbenaca, Saponaria officinalis, Saxifraga tridactylites, S. granulata, Scirpus lacustris, S. sylvaticus, Carduus nutans, Sedum album, S. dasyphyllum, S. reflexum, Sison Amomum, Symphytum officinale, Spiræa salicifolia, Sisymbrium Sophia, Nasturtium sylvestre, Thlaspi arvense, Thymus Serpyllum, T. Chamædrys,* both very abundant here. About ten or twelve years ago my attention was drawn to the examination of those two Thymes first from tasting them. I found that one of them, *Thymus Chamædrys,* had a pungent, biting taste, together with a powerful scent;

the other, *Thymus Serpyllum,* very little taste or smell; this led me to a more close examination of these several characters, first by sowing the seed of each species, which followed their parents truly, then year after year I closely examined their habits and stratal adaptations. *Thymus Serpyllum* thrives better on very dry, sandy rocks, or dry ditch-banks, comes into flower in June, out of bloom in August; sheep, I observe, eat it readily. *Thymus Chamædrys* comes into flower in July, generally a month later than the other, thrives on cold, clayey soils, often remains in flower until November; sheep will not eat it, owing to its pungency.

Trifolium medium, Sinapis nigra, abundant on the banks of the River Severn; *Trifolium striatum, Senecio erucifolius, Teesdalia nudicaulis, Tulipa sylvestris, Turritis glabra, Typha angustifolia, Verbascum Lychnitis, Verbena officinalis, Veronica montana, Verbascum nigrum, Veronica scutellata, Vinca major, V. minor, Viola hirta, V. canina, V. sylvatica, V. odorata,* var. *imberbis:* this will ultimately be considered a distinct species of Violet; from seed I find it strictly to maintain its distinct character, destitute of the hairy line; it is very abundant here; less so is the blue, or *V. odorata;* I have examined them from every locality in this part of the country, and find this character very constant.

Taxus baccata, plentifully disposed in woods, hedges, and ravines. The Yew varies much in its contour; in some the branches spread much alike to the Cedar; others with an ovate outline. A few are found with pensile branches; this form is very beautiful indeed, particularly when adorned with their scarlet drupes. I have frequently planted the seeds of the Yew from a tree distant more than a mile from the male tree; they all vegetated from the second year after planting.

Viscum album: this parasite is found sparingly on the Ash, White Willow, Pear, Lime, Black Poplar, Red Maple, Great Maple; very abundant on the Apple, Crab, Hawthorn; very abundant and luxuriant on a Poplar lately introduced into this country, by some called the Carolina Black Poplar, by others Italian Black Poplar; on this tree it grows in a short time to a much larger size than it does on any other tree, probably from the rapid growth of its new foster-parent.

I have some reason to believe that this parasite springs spontaneously on its favourite trees. On several occasions I have found protuberances on the Crab-tree, with many little branchlets springing therefrom.

Prunus Cerasus is found in several places here in old hedges in parts long cultivated; it very likely was once the only Cherry ever cultivated here; the cropping the hedges causes it to become more stoloniferous. In an old orchard I once saw a very old tree of this species.

Prunus Avium; black and red fruited of botanists. The red-fruited is probably a distinct species; its growth luxuriant, branches stiff, leaves larger than *P. Avium*, and grows sooner to a much larger tree; fruit always red, the other always black. Plentiful in woods and hedges in the neighbourhood of Bewdley.

Now from the sylvan wilds, the mountain and the moor, to wander in the flowery fields, adorned with gems of every hue that have left their birthplace in the forest shades to enjoy their freedom in the woods. First *Ranunculus bulbosus* spreads its yellow mantle far and wide; *Orchis Morio* parades in military array; *Primula veris*, with its pendent tassels, tipped with gold, adds to the meadows floral charms; the cheerful, meek, and humble Daisy sits upon the grass; *Rhinanthus Crista-galli* rattles in the breezes; *Ophioglossum vulgatum*, adder-like, concealed amongst the grass, also *Botrychium Lunaria*, mystic herb! of no account in Flora's train; *Anemone nemorosa*, *Euphrasia officinalis*, *Erythræa Centaurium*, and many more, have fled for freedom here to join the floral groups; the modest *Primula vulgaris* will not forsake its sylvan shades, nor *Melampyrum pratense* (wrongly named) will not forsake its forest home, here co-existing with the Oak ever since it first began to people its domain. Just risen from the womb of mother earth, poor *Colchicum*, a naked, ruthful object, arrived too late to join the floral train; it has left behind its crest of green, sad harbinger of Flora's near demise!

The arable fields present a different Flora: some from the woods have come; some meaner tribes, ejected from the meads; some aliens, no one knows from whence they came,—some annual, others perennial,—all agricultural pests that flourish from the sloven's negligence. Here *Papaver Rhœas* spreads its gory mantle over the cereal crops, which it often nearly destroys, as also *Sinapis arvensis*, both insidious foes, conceal their mischief beneath the sod for many years. *Triticum repens*, *Tussilago*

Farfara, Sonchus arvensis, Cnicus arvensis, are all sappers and miners, michievous foes in agriculture; but *Cnicus arvensis,* the most formidable, armed *cap-à-pie,* defies the hand that dares to pluck it from its usurped abode; those are the most troublesome on the stiffer soils. There are many more less troublesome which infest the lighter soils.

Rubus Idæus: I have not found this plant so decidedly aboriginal as about the eastern base of the Titterstone Clee Hill, in the woods, and by the sides of rivulets over an extensive locality, and also up the side of the mountains amongst the masses of basalt, above cultivation, to about the altitude of 1500 feet.

Alien plants, and occasional visitors in the neighbourhood of Bewdley :—*Euphorbia Lathyris, Leonurus Cardiaca, Œnothera biennis, Nicotiana rustica, Lunaria rediviva* (Honesty), *Armoracea rusticana, Anthriscus Cerefolium, Camelina sativa, Amaranthus Blitum, Borago officinalis, Antirrhinum majus, Carduus mariana, Cheiranthus Cheiri, Chenopodium olidum, Datura Stramonium, Dianthus Armeria, Coronilla verum, Tragopogon porrifolius, Rumex sanguineus, Impatiens Noli-me-tangere, Clematis Vitalba, Campanula rapunculoides, Lamium maculatum.*

Hedera hibernica (Irish Ivy), a variety or species, much larger than *Hedera Helix:* this Ivy was introduced by Sir Edward Winnington, Bart., and first planted at Wyntesdyne about eighty years since; it is now very extensively planted against houses and walls in the town of Bewdley and its precincts.

On Anacharis Alsinastrum. *By* W. Cheshire.

Recollecting the alarm caused by the sudden appearance and rapid growth of *Anacharis Alsinastrum* (Bab.), I think it strange that no one has taken the trouble to prove or disprove the danger to navigation (at least, not that I have seen); and hope a few observations on the behaviour of the plant in the Avon and other waters near Stratford-on-Avon may not be uninteresting. I found *Anacharis* in the Avon, near Clopton's Bridge, June 6, 1853, and commenced a close search for it in other places in the river, but could only find it in two places lower down, and not up the river at all. On finding the plant so very sparingly distributed, I fancied it might possibly have come down the canal, which joins the river by a lock near the bridge, and, after walking about half a mile along the canal-side, came upon a few small patches of the plant, each about one foot in circumference. Continuing then along the towing-path, and looking carefully into every nook likely to shelter it without success, till I arrived at the tenth lock from Stratford, and about two and a half miles from the river, where there were a few small plants in the side reservoir of the lock, the level being about seventy feet above that of the Avon, then two locks (a quarter of a mile) further, and found three patches one or two feet square; this was eighty-two feet above the river, and the last colony found, although I kept on for six miles further. Being at Evesham on the 10th of July, 1853, I looked for the *Anacharis* in the Avon there, but the river being slightly flooded and the water muddy, could not *see* it, so obtained a pole and *felt* for it in the nooks and eddies it was most likely to have located itself in, and was soon rewarded by seeing some sprigs floating down from where I had been poking; taking another and more careful dip, succeeded in landing a large plant. At the end of July, 1854, when again at Evesham, saw there was abundance in all the shallow water near the bridge. About the middle of August, 1853, found the plants from the tenth to the twelfth lock on the canal beautifully in flower, but could not find any further on towards Birmingham. When eleven miles from Stratford crossed to the Warwick and Birmingham Canal, proceeding towards Warwick, but did not find any *Anacharis* till I got to Hatton, about three miles from Warwick, where I found plenty in the side reservoir of one of the locks. This must have come from Warwick, where the plant had been known some time, and, as at Stratford, had to ascend considerably to get there. In 1854 the Avon was freely colonized by it from Stratford to Evesham, and in many places growing as close together as it was possible for it to do; still there was no serious obstruction to navigation. The broken pieces floated freely in the Avon, which is moderately clear, but always sank in the canal, which is very muddy. The alarm felt after its rediscovery at Foxton locks is, I think, quite groundless, as in the Stratford and Birmingham Canal, the Oxford Canal from Rugby to Brinklow, and the Ashby-de-la-Zouch Canal, passing boats keep a channel clear of the *Anacharis* in the same manner as with the other aquatic plants. It is only in the little-used branches of the canals that the entire canal is grown up with it in masses sufficient to obstruct anything in the shape of a boat; and even there, from its fragility, it is very little real obstruction, and readily gives way to anything touching it, not clinging to the sides of a boat or swimmer as some of the *Potamogetons* do: the obstruction caused by *P. perfoliatus, P. crispus, P. lucens*, and *P. flabellatus*, to the passage of a small boat, I have proved to be much greater than the thickest mat of *Anacharis* I could find. How it can obstruct the drainage of the Fens I cannot see, as it will not lie close enough together for even capillary attraction to act and so keep as great a bulk of water as itself together. If a quantity be raised from the water on a stick, it is found that the water quickly runs from it; it would require a very large quantity to make a dam solid enough to keep water a foot higher than its usual level. In September, 1853, a very large plantation of *Anacharis*, about twenty-six square yards in extent, was taken possession of by a few ducks which refused to feed on any other part of the canal; they were probably in search of the insects which had taken shelter amongst the entangled mass (I have generally found the beautiful Bell Polype on the edge of its leaves). Be that as it may, it was not able to withstand the assault from their bills, and gradually disappeared, so that by October there was not a morsel in the part of the canal they frequented. It commenced growing again about October, 1854, and in the spring of 1855 was again cleared by the ducks. The only places it is likely to be a serious nuisance are ponds and ornamental water generally; but it is easy to eradicate the plant in these places, which are most of them provided with a sluice for drawing off the water. The Avon being a mill-stream, the mills, as a matter of course, sometimes want repairs. Bridges and locks too wear out, so that we sometimes have the water drawn off as low as possible, when a great portion of the *Anacharis* is left dry for a time, varying from twelve to twenty-four hours. In 1855 repairs of the foot-bridge caused the river to be kept low a longer time than usual, when a very wide and shallow portion of the river which was overgrown with *Anacharis* became entirely free from it. When the plant has flowered it soon decays. In the canal, where it flowered in 1853, soon after the flowers were over it became very weak, the leaves falling off, and the winter flushes carried most of the denuded stems away. This I have seen repeated two or three times and in different places, one in particular, a still pool of clear water (in which it does not flower so soon or so freely as in muddy water,—the first flowers I observed in the Avon were in the beginning of September, 1854) near the Avon, and so high above it that moderate floods do not touch it. The pool was full of *Anacharis* in 1854, to the exclusion of *Callitriche, Chara*, etc., looking solid enough to walk on; this flowered in the autumn of 1855, and now (1856) there is scarcely a trace of it: again at a lock in the river, the entrance of which was filled all the summer of 1854, but when it had flowered it soon disappeared. Where it is frozen the whole plant dies. May not this be one reason for its more rapid growth in England than in the North American waters? Here we seldom have thick ice; there the rivers are frozen every year, and for some considerable time. But the fact of only one sex being present is the greatest reason of its extraordinary luxuriance, as many of our common plants are seen to spread very much when prevented forming their seeds by the same accident, as *Petasites vulgaris, Mercurialis perennis*; and many others, might, I think, be picked out, that behave in a similar manner. It is very late in commencing growing for the season; it did not begin to grow in 1854 in the Avon till the 18th of March, when I found young shoots a quarter of an inch long; they continued to grow very slowly till the middle of May, when the plant may be said to have commenced its rapid march for the season, growing surprisingly where undisturbed till late in October. I have not seen that any one has given it the character of a sanatory reformer. I think myself there is a great change for the best in many of the still ditches and pools it grows in here, some of which used to be very offensive to both eye and nose; now they are beautifully clear, and the smell is gone.

Reviews.

Poisoning by the Root of Aconitum Napellus. *By* F. W. HEADLAND, M.D., F.L.S., etc. Reprinted from the 'Lancet' of March the 29th, 1856.

This is a seasonable offering to us. "A word spoken in season is like apples of gold in fittings of silver." Virgil, in his warm admiration of his native country, tells us that Wolfsbane does not deceive the unhappy herbalists,—*nec miseră fallunt Aconita legentes.* Italy was not free from this baneful herb; but probably the Italians were better instructed in the properties and appearances of plants than the *Britishers* are. It is scarcely credible that it is innocuous in Italy. It appears however to be eaten with impunity in Lapland (*teste* Linnæus, Fl. Lap., p. 187). "I noticed," he says (we translate the passage), "a woman in early spring gathering the leaves of this Aconite, and on asking her what she collected them for, she replied to dress and eat them. Thinking that she mistook them for the leaves of *Geranium sylvaticum,* I besought her not to poison herself. She smiled, and said that there was no mistake and no danger, that she knew the plant perfectly, and pitied my ignorance of its salutiferous nature. I entered her domicile, and saw her boil the leaves with a small bit of fat, and she and her husband dined on Wolfsbane broth."

BOTANICAL NOTES, NOTICES, AND QUERIES.

Sir,—Your Correspondent on Welsh plants, in the 'Phytologist' for April (p. 297), seems inclined to regard *Spiræa salicifolia* as indigenous in the neighbourhood of Bala. The Rev. T. Salwey thought it so, who informed me, in 1837, of its wide-spread occurrence in that district; and so, I believe, did Mr. Joseph Woods, who had previously observed it by the Dee below Bala, whence also I have a specimen from Dr. Martin; and such certainly was my own impression when, a few years later, I had the opportunity of seeing the plant in many places and in different directions around Bala. Happening however to meet with a patch near the Corwen road which had evidently recently been planted, I inquired of a neighbouring cottager, who told me that the proprietor of a large tract of land thereabouts, a gentleman named Price, resident close by the town of Bala, had distributed the shrubs among his tenants for planting. I was afterwards informed by himself that he had done so for shelter for sheep in the open moors of his property, and that even the very wild-looking thickets on the banks of the Dee had been planted; and he added his full assurance that the *Spiræa* was not a native of any part of Wales. My scepticism as to the northern stations of this *Spiræa* is recorded in the 'Phytologist' (vol. ii. p. 427). I must admit however that a large portion of the shores of Windermere I have never visited.

Henfield. W. Borrer.

Spiræa salicifolia.—This shrub is noticed by both Gerarde and Parkinson. The latter informs us that it was sent to Clusius from Silesia, where, he says, "it is most likely to grow." It is not in Ray's 'Catalogus Plantarum Angliæ,' nor in Hudson's 'Flora Anglica,' 1762. It is in Withering's 'Arrangement,' vol. ii. p. 463, 3rd edit., and the notice is as follows:—"I am indebted to Mr. Gough, of Kendal, for the knowledge of this being a native. He says that it sometimes occurs in moist hedges in Westmoreland, in many places on the border of Winandermere; and it has been lately discovered by Mr. Dalton, of the Academy of Manchester, by the road between Pool Bridge and Colthouse, near Hawkshead, Cumberland. It is well known in our gardens by the name of *Spiræa frutex*."

Shamrock.—The word Shamrock, which is the name given by the Irish to the Trefoil (a variety of *Trifolium repens*), which they wear in their hats on St. Patrick's Day, is, I am certain, derived from the word *Shomrecha* (in Psalm cxxi. 5). The word is composed of four Hebrew letters and four Hebrew vowel-points. The first letter is *Sh* (shin), the next is *m* (mem), the next is *r* (resh), the last is *ch* (caph). The root is *shamar*, "to preserve or keep;" and the verbal noun, with the pronominal affix *cha*, is *Shomrecha*, and means "*thy* keeper." The sense of "*Jehovah shomrecha*" is "the Lord thy keeper." St. Patrick is reported to have been asked how he would define the Blessed Trinity. He took a leaf of the Trefoil, which is parted into three divisions on one footstalk, and illustrated the Trinity by it. I have no doubt but that this is the meaning of the word *Shomrecha*. I therefore conclude that we should not think that a variation in the vowels ought at all to set aside my interpretation of the word Shamrock; and as for *ck* at the end of the word, we know at this day how perfectly unsettled the spelling of words was, even among those whom we should justly call well-educated people. I, who do not use the points, should feel myself justified in pronouncing "Shmrch" Sh*e*mr*e*k or Sh*a*mr*a*k. H. B.

[The Hebrew word *Shemir* means *sentis*, a Briar or spinous shrub; so called because it retains or preserves on its spines soft objects, as wool, cloth, etc.; or because the prickles or thorns preserve it from being eaten by animals. *Shemir vashaith* (Isaiah v. 6) is translated, in our common version, "*briars* and *thorns;*" also *Ushimiro*, "and *his thorns*" (Isaiah x. 17); *Shimurim*, "statutes and customs" (ordinances) to be kept; *Meshmar*, "a *prison*," because it keeps or preserves the prisoners, etc. As we have no other derivation of *Shamrock* to propose, we will leave our learned readers to decide whether or not the *one* proposed by our ingenious Correspondent "H. B." is a feasible *one*.]

Sir,—The following list of plants growing near Bomere Pool, etc., was found in a copy of Purton's 'Midland Flora.' They were probably collected by some former possessor of the work, who has made several annotations on the margin of this copy. Possibly some Shropshire Correspondent of the 'Phytologist' may be able to verify the statements contained therein, and probably might guess the author.—Yours truly, Librarius.

Elatine Hydropiper, Cicuta virosa, Carex filiformis, C. curta, C. teretiuscula, C. limosa, Isoetes lacustris, Scirpus fluitans, Lobelia Dortmanna, Littorella lacustris, Pilularia globulifera, Schœnus albus, Drosera longifolia, Utricularia minor, Rhamnus Frangula, Typha minor, Alisma ranunculoides, Prunus Cerasus, Sparganium natans, Hypnum stellatum, H. loreum, H. fluitans, H. lucens, Dicranum adiantoides, Hypericum Elodes.

Lotus or *Lotos*, *Derivation of*.—This term, employed by classical poets and historians to designate several very different plants, both herbaceous and arborescent or shrubby, and in modern and mediæval times often misunderstood, is from the Greek λουω, *I bathe*, or *I wash;* and hence are derived the various Latin forms *luo*, *diluo*, *eluo*, *lavo*, etc., all of significations cognate with the Greek verb. Its applicability to the aquatic plants *Nymphæa* and *Nelumbium* is obvious enough. We would thank our learned readers for even plausible conjectures explanatory of its application to the Leguminous *Loti*, or to the *Rhamnus Zizyphus* or *Celtis*.

If "Carpentarius" would take the trouble to look into a quarto edition of Ainsworth's Latin Dictionary, he will see what is probably the derivation of both "*Carpĭnus*" and "*Hornbeam*." Under the verb "*Carpo*" he will find one of the meanings to be "to *card* or comb wool," etc.; unde derivatur *Carpinus*, the '*Yoke*-tree,' from which the teeth of the comb were probably made; unde derivatur *Carpineus*, 'made of the *Carpin*-tree' (this is possibly the origin of the word *carding*). Again, Hornbeam is evidently the *beam* or yoke that connected the *horns* of the oxen in olden times, made from the same tree. There are various references to Pliny under the above words in the Dictionary. INVESTIGATOR.

Populus nigra and *P. fastigiata* (Lombardy Poplar).—Will any skilful botanist and arboriculturist inform "Juvenis" what is the botanical distinction between these two reputed species?

Tilia.—*Quære:* Is this term derived, as London and Wyse in 'Retired Gardener,' tell us, from πτιλον, *a feather*, or from τιλαι? The Anglo-Saxon name is Lind or Linden.

Species, Definition of, by Dr. Lindley ('Introduction to Botany,' p. 365).—"A species is a union of individuals agreeing with each other in all essential characters of vegetation and fructification, capable of reproduction by seed, without change, breeding freely together, and producing perfect seed, from which a fertile progeny may be reared." We wish to be informed if botanists generally adopt this definition of Species.

Arum italicum in the Isle of Wight.—In the 'Gardeners' Chronicle' for February the 2nd there is an abstract of a report of the proceedings of the Edinburgh Botanical Society; and, among other notices, there is one about the occurrence of *Arum italicum* among rocks and ivy between Niton and Bonchurch. Mr. Hambrough, its discoverer, says that "it differs from *Arum maculatum* in almost every respect." It would be desirable to see a living plant of this Bonchurch form before deciding about its specific distinctness from *A. maculatum*. This latter plant is very rarely seen in fruit till the latter end of the summer, and the appearance of its fruit in autumn is not an uncommon occurrence. The spadix is well known to assume divers shades of colour: this is well known to children, who call the plants with the dark purplish-coloured spadix *Lords*, and those with the paler, or yellowish-coloured, *Ladies*. We have never seen the *Arum maculatum* quite so tall as two feet, the height given of the supposed *A. italicum*. A living plant from the station near Ventnor, or a root or corm, would very much oblige the Editors of the 'Phytologist.' Will some of our Hampshire Correspondents have the kindness to gratify us by sending specimens or roots?

Fumaria confusa, Jord.—With reference to your inquiry relative to this plant (p. 143), it has no stronger claim to be accounted British than as a ballast introduction. It was first noticed by myself, in 1852, in the vicinity of Middlesborough, on the Yorkshire side of the Tees, and it has since been found by other botanists who have visited the locality. At first we passed it over as a form of *F. capreolata*, from which it may be known by its smaller and rounder sepals. By Grenier and Godron it is included under their *F. muralis*. *F. Bastardi* of Boreau ('Flore de la Centre,' etc., 2nd edit.) is either the same species or variety or includes it. I have no duplicate examples just at present. J. G. BAKER.
Thirsk, North Yorkshire.

Sedum sexangulare, Note on, (see 'Phytologist,' pp. 260–261, N.S.)—We once collected on the rocks between Malham Cove and Gordale what we rather wished than thought was the plant above named. It has been said that the acridity of *Sedum acre* will always distinguish *it* from *Sedum sexangulare*. We think that it sometimes, especially in elevated situations, loses this characteristic. We were satisfied that our specimen, from near Malham Cove, was not *S. sexangulare*, especially after comparing it with a cultivated specimen of the latter-mentioned species.

NOTICES TO CORRESPONDENTS.

"H. B.," Cranbrook, is very respectfully informed that the Grass which grows in his garden, and which is used by the country people in the manufacture of baskets, etc., cannot be satisfactorily identified from the specimen so kindly sent. If "H. B." will oblige us with a living specimen of the Grass in question, we will endeavour to make out its name.—Since the above was set up we have received the Grass in question, for which we tender our respected Correspondent "H. B." our grateful thanks.

We beg to thank our Reverend Correspondent of Wells, Somerset, for a good plant of the Cheddar Pink. It arrived safely, is planted, and is likely to do well.

Our thanks are also due to the Hon. W. F. Strangways for fresh specimens of the Dorsetshire *Pulmonaria angustifolia*.

Communications have been received from

The Rev. T. F. Ravenshaw; W. A. L.; W. Simpson; G. B. Wollaston; the Hon. W. F. Strangways; H. B.; J. G. Baker; John E. Sowerby; J. G. B.; W. P.; Dr. W. L. Lindsay; J. A. Brewer; D. M.

BOOKS RECEIVED FOR REVIEW.

Ravenshaw's Plants of North Devon.
Johnson and Sowerby's Ferns of Great Britain.
Brewer's Flora of Reigate.
Johnson's British Poisonous Plants.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Notes on the Flora of Holstein. By W. Lauder Lindsay, M.D., Perth.

The following Notes refer to plants seen or collected during a botanical excursion in Schleswig-Holstein, in August, 1850. This district has a very rich flora: and it deserves greater attention than hitherto from British botanists. It is now within easy access from our chief seaports; and a trip to the south of Denmark *viâ* Hamburg can be made as cheaply as an excursion to Wales or the Scotch Highlands. The more abundant or more interesting plants alone are mentioned in the following list. Fuller details may be gathered from Sickmann's 'Enumeratio Stirpium Phanerogamicarum circa Hamburgum sponte crescentium,' Koch's 'Synopsis Floræ Germanicæ,' and Hornemann's 'Flora Danica:' but there appears to be no special Holstein Flora extant.

Aster Novi-Belgii, A. salignus, and *A. parviflorus,* all grow in considerable abundance among the Willows and Reeds on the banks of the Elbe, about a mile below the fishing village of Blankenese. They are probably not originally natives of Holstein, but are now completely and extensively naturalized there: their native country is North America, whence the seeds have accidentally been brought by shipping.

Psamma arenaria is very extensively diffused, and is of great service, along with other sand plants, in binding the shifting sand-dunes.

Artemisia campestris. Abundant on the gravel hills on the banks of the Elbe, below Blankenese. *A. Absinthium* and *vulgaris,* also plentiful on waste ground about Schenefeld and elsewhere.

Asparagus officinalis. I met with only one large plant of it in the woods on the Blankenese gravel hills, below that village. The station was pointed out to me by Mr. Matthew, of Schenefeld.

Bidens cernua and *tripartita,* with varieties, are very common in ditches and pools everywhere.

Butomus umbellatus. Abundant in ditches and marshes on the banks of the Elbe, below Blankenese.

Campanula, sp.? Pretty frequent in the marshy thickets on the Elbe, below Blankenese.

Carlina vulgaris. Pretty common on the Blankenese gravel hills.

Centaurea Jacea. On roadsides, not unfrequent near Schenefeld, etc.

Chelidonium majus I found very abundant in the hedges everywhere; the specimens being sometimes remarkably tall and strong.

Cichorium Intybus occurs frequently on roadsides among corn, on rubbish heaps, etc., and is moreover largely cultivated for the adulteration of Coffee.

Convallaria majalis. Pretty common in the woods. *Conval.* sp.? I met with only a few specimens in a hedge in a bye-path near Schenefeld.

Convolvulus sepium forms a very plentiful and graceful ornament to the hedges near the banks of the Elbe, as at Wedel.

Corrigiola littoralis occurs abundantly on sandy heaths, and on the sand-dunes round Rissen and elsewhere.

Cuscuta europæa. Abundant in hedges near Pinneberg; parasitic chiefly on the Hop.

Digitaria humifusa. Grows in great abundance, among Buckwheat especially, near Schenefeld.

Cirsium oleraceum. Common in the marshes on the Elbe, below Blankenese.

Drosera rotundifolia. Abundant in the bogs everywhere.

Erigeron acris and *canadensis.* Both abundant on the Blankenese gravel hills sloping down to the Elbe.

Eryngium campestre. Also abundant in the same locality.

Helichrysum (*Gnaphalium*) *arenarium.* Also very common in the above station.

Galeopsis ochroleuca I met with everywhere in cornfields. *G. pubescens,* also common in every field.

Genista anglica and *tinctoria* I met with only in circumscribed extent on some ancient barrows or funereal mounds, called by the peasantry *Hünegraben* (Huns' graves), from the belief that they were erected by the ancient Huns, as monuments to their warriors slain in battle. On this supposition, which however, though supported by some Continental antiquarians, is opposed by others, the neighbourhood of my head-quarters must have been the scene of a considerable battle: for these barrows or tumuli exist there in considerable numbers.—I may digress here for a moment to mention that these are huge mounds or hillocks of sand and gravel, now completely covered by Heather, etc., which are generally found to contain in their interior, when dug into or razed to the ground, urns full of human bones and ashes, with numerous warlike weapons, such as spear-heads, axes, etc. The spears are generally of iron, and much corroded, but the axes are of copper, and sometimes in a state of very good preservation. I applied to the proprietor of one of these barrows to allow me to have it opened for the purpose of sacking it of its contents, which I intended depositing in the Antiquarian Museum of Edinburgh, and was only prevented by the superstitious awe with which they are regarded by the rude and primitive natives. These and other Scandinavian antiquities are more abundant however in the eastern than western part of Holstein.

Gentiana Pneumonanthe I met with everywhere in the numerous bogs and moors.

Herniaria glabra I only noticed on one occasion on a roadside near Ottensen, Altona; but I have reason to believe that it is by no means unfrequent in similar localities.

Galinsoga parviflora grows in tolerably plenty as a weed in some old orchards at Schenefeld. It seems to have become naturalized in Northern Germany, having escaped from cultivation (being originally a native of Peru).

Inula britannica I found in patches among Willows on the Elbe, two or three miles below Blankenese.

Humulus Lupulus is very common on all the hedges, and is also abundantly cultivated.

Hydrocharis Morsus-ranæ. Abundant in all the stagnant pools, lakes, dams, etc.

Illecebrum verticillatum I found pretty abundant on all the sandy heaths; but the finest specimens occurred on the sand-dunes round Rissen, about three miles inland from Blankenese.

Jasione montana. Abundant on sandy roadsides and moors.

Lactuca sp.? was pretty abundant in ditches, thickets, woods, etc., as in Pinneberg Beech-wood.

Lathyrus sylvestris was met with in considerable plenty among the shrubs crowning the gravel *cliffs* above the Elbe, about two miles south of Wedel, near Schulau.

Leonurus Cardiaca. In considerable abundance on roadsides, rubbish heaps, hedges, etc., round Schenefeld.

Lycopus europæus. Common in the ditches everywhere.

Lysimachia vulgaris. Pretty abundant in the wet thickets and marshes on the Elbe, below Blankenese. *L. nemorum* and *Nummularia,* in the woods round Pinneberg and Rellingen.

Lythrum Salicaria. Exceedingly common on all the Elbe marshes and islands, besides ditches and marshes everywhere. Its abundance gives a deep red tinge to all the Elbe islands, when looked at from the deck of a steamer, for example.

Medicago sativa. I met with only a few plants on the gravel banks behind Blankenese. Koch mentions that it is perhaps originally from Spain, and naturalized, but also certainly native in Germany.

Melilotus officinalis is rather common in the Elbe marshes and thickets below Blankenese.

Mentha sylvestris. Common in the same locality.

Menyanthes trifoliata is very common in all the bogs and pools. I merely introduce it here for the purpose of mentioning that its leaves (along with Tormentil-root and many other astringent vegetables) are much used in the preparation of various bitters, which seem to be much relished on the Continent. Bitters were unusually fashionable, during my visit, on account of the prevalence of the cholera, which was then raging fiercely in Hamburg and Lübeck, and over a considerable part of Germany: this being one of the many thousand nostrums the Germans habitually swallow as preventive remedies. One kind, called familiarly in Altona "Cholera Schnaps," contains brandy, ether, Buckbean, and Tormentil: another, "Pfeffermint Schnaps," contains Essence of Peppermint, which is a very popular remedy *in* cholera.

Œnothera muricata grows abundantly on the Blankenese gravel hills.

Ononis spinosa. Common in the above station.

Nasturtium sylvestre abounds in the Elbe marshes below Blankenese.

Nuphar lutea. Plentiful on all the larger pools, lakes, dams, etc.

Œnanthe fistulosa. I found only a few specimens in a ditch near

Rissen. *Œ. Phellandrium,* tolerably frequent in ditches and marshes on the Elbe below Blankenese.

Oplismenus Crus-galli occurs pretty abundantly among Buckwheat, in the fields round Schenefeld.

Ornithopus perpusillus. Abundant on sandy heaths and the sand-dunes round Rissen; the specimens being generally very large.

Oxalis stricta. Koch mentions that this plant has been brought from North America, and is now naturalized in Germany, occurring in orchards and among garden-plants, and precisely in such a station I met with it in plenty at Schenefeld.

Phleum pratense, var. *nodosum,* was also abundant in the meadows and marshes.

Polygonum Bistorta. On roadsides; common.

Polygonum Convolvulus and *dumetorum.* In the hedges.

Polygonum Hydropiper, P. lapathifolium, and *P. minus.* In the Elbe marshes below Blankenese.

Potentilla argentea I found plentifully on the roadside near Schenefeld; and on the Blankenese Hills, near Suldorf.

Pulicaria dysenterica and *vulgaris.* In the marshes and ditches on the Elbe, below Blankenese.

Ranunculus Flammula, var. *reptans.* Abundant in ditches and marshes everywhere.

Radiola Millegrana. Very abundant on the sandy heaths everywhere.

Rhamnus Frangula. Common in the hedges and thickets round Schenefeld.

Rhynchospora alba. Plentiful in all the bogs and moors round Schenefeld.

Rumex Hydrolapathum. Frequent in the Elbe marshes below Blankenese.

Sagittaria sagittifolia. Common in the ditches and marshes on the Elbe, below Blankenese.

Saponaria officinalis I met with occasionally in the hedges: but none of the specimens seemed purely native, having double flowers, etc.

Scirpus triqueter and *lacustris.* Common in the Elbe marshes below Blankenese.

Scutellaria galericulata. Abundant in the hedges on the road, through the sand-dunes, between Rissen and Wedel.

Sedum reflexum. Common on the gravel hills on the Elbe, below Blankenese.

Sedum Telephium. Common in the hedges round Schenefeld.

Serratula tinctoria I met with in thickets near Schenefeld.

Setaria viridis and *glauca.* Very common among Buckwheat and in cornfields round Schenefeld.

Sisymbrium Sophia. Abundant in the hedges on the high roadsides near Altona.

Sium latifolium. Common in ponds, lakes, and mill-dams, as at Pinneberg, Schenefeld, and the Elbe marshes.

Solanum nigrum. Very common on the roadsides and on rubbish heaps, Schenefeld.

Spiræa salicifolia. Met with only once or twice in hedges, Schenefeld.

Malachium (*Stellaria*) *aquaticum.* Common in the ditches and marshes on the Elbe, below Blankenese.

Stratiotes aloides. Also frequent in the above station.

Teesdalia nudicaulis. Met with frequently on the moors, but never of any great size.

Typha latifolia. Common in the lakes, pools, mill-dams, etc., as at Pinneberg, Wedel, and Schenefeld.

Verbascum nigrum. Common on roadsides, Schenefeld.

Viburnum Opulus. Very common in the hedges.

Salicornia herbacea. This plant plays a very important part in the formation of the marshes on the banks of the Elbe. When a bed of mud is deposited in the river to such an extent as to be permanently above low-water mark, this plant begins to appear, and Prof. Forchhammer supposes it to act beneficially in two ways.—1. Mechanically, from the rigidity of the stem and branches standing out at right angles from it; he says, "It would be impossible to select a plant better fitted for preventing the little wave-stroke of the daily high tides, and so favouring the growth of the marsh." —2. Chemically, "since it, like all other salt-water plants, abstracts from the sea-water the materials generally favourable to plant-growth, and by its decay deposits these in the mud."

Zostera marina is thrown up in such abundance on the coasts, that it is employed in the manufacture of mattresses.

Some Observations on the Flora of Faversham *and its Neighbourhood. By the* Rev. HUGH A. STOWELL, Cor. Memb. B.S.L.

(*Continued from page* 256.)

Localities of some of the less common species :—

Clematis Vitalba. In most of our hedges, chalk-pits, and wood-borders.

Myosurus minimus. Cornfields, on the gravel, chiefly about Luddenham and Oare.

Ranunculus circinatus. Dykes in Nagden Marshes, and about the Stour, at Chilham.

Ranunculus fluitans. In Thorn Creek.

Ranunculus hirsutus. On the sea-walls. In cornfields on the gravel.

Ranunculus arvensis. Cornfields, especially about Luddenham and Stone; abundant.

Aquilegia vulgaris. In woods about Belmont, Lee's Court, and Chilham; abundant.

Papaver hybridum. Cornfields near Westwood and Perry Court Farms; rarely.

Papaver Argemone. Cornfields about Luddenham and Oare; more frequent than *P. Rhœas*.

Papaver dubium. Cornfields near Oare Bridge and Stone Farm; rarely.

Papaver somniferum. Cornfield beyond Cockset Wood; rare.

Chelidonium majus. On the Abbey-walls, below Whitehill, between the Four Oaks and Stone Farm.

Glaucium luteum. On the beach at Seasalter.

Fumaria capreolata. Cornfields opposite to the farms in Porter's-lane.

Fumaria micrantha. Cornfield between Clapgate-lane and Ewell Farm; rare.

Cakile maritima. On the beach at Seasalter.

Thlaspi arvense. Cornfield by the path from Luddenham-street to Oare; rare.

Lepidium campestre. Cornfields below Sandbanks Wood and behind Dully Wood; rare.

Cochlearia anglica. Margin of Faversham Creek, about and beyond the bridge.

Armoracia rusticana. Bank behind the farm adjoining Cades, near Rodmersham Church.

Cardamine hirsuta. Oare Mill-pond.

Arabis Thaliana. Fields between Davington Osiers and Bysing Wood; frequent.

Cheiranthus Cheiri. Old walls about the town. Wall at Cokins.

Raphanus Raphanistrum. Cornfields at Stone and near Newnham, but sparingly.

Reseda Luteola. In Porter's-lane and the lane from Whitehill to Ospringe Vicarage; not nearly so common with us as *R. lutea.*

Helianthemum vulgare. Whitehill. Badging Wood and Downs, Belmont, etc.

Viola alba. Bank between Four Oaks and the nearest cottages; banks on the Ashford and Whitehill roads.

Viola hirta. Syndale, Cockset, and Belmont Woods. Whitehill and Cades.

Polygala calcarea. Near Wilderton; field below Middle Wood.

Dianthus Armeria. Roadside in Bysing Wood, Sandbanks Wood. Behind the little wood near the Four Oaks.

Silene maritima. Beach at Seasalter.

Lychnis vespertina. North-east border of Bysing Wood. Between the Four Oaks and Stone Farm. Between Whitehill and Belmont. About Graveney.

Lychnis Githago. Cornfields between Preston Mill and Mr. Apsley's, and between Perry Court and Badging Downs, but very sparingly. Nowhere plentiful, except in a field by the Rose and Crown, Perry Wood.

Sagina apetala. On a wall in Staple-street. Rodmersham churchyard-wall.

Spergula arvensis. Fields about the Four Oaks, and by the path between Selling and Shepherd's Fostal.

Honkeneja peploides. On the beach at Seasalter.

Spergularia marina. Marshes of Faversham and Oare Creeks.

Arenaria trinervis. Bysing, Perry, and Syndale Woods. A little wood between Shepherd's Fostal and Perry Wood.

Stellaria uliginosa. Swampy ground below Bysing Wood, near Luddenham Vicarage, and below "The Pulpit." Perry Wood.

Cerastium semidecandrum. On a wall by the path from Preston-street to Ospringe-road, near Goodnestone Church.

Linum angustifolium. By the roadside on Beacon-hill. Waste ground near Luddenham Church; sparingly.

Malva moschata. Behind the fir wood on the office-road to Belmont.

Malva rotundifolia. By the roadsides about Davington. Luddenham-road. Homestall-road. Plentiful.

Hypericum humifusum. Syndale Wood, near the farm. Borders of Bysing Wood. Badging Wood.

Hypericum pulchrum. Borders of Bysing Wood, and between Syndale and Cockset Woods.

Hypericum hirsutum. Bysing, Syndale, Cockset, and Badging Woods. Porter's-lane, etc. Plentiful.

Acer campestre. Hedges on the Homestall and Whitehill roads, and in Porter's-lane.

Erodium cicutarium. On the beach at Seasalter.

Geranium pusillum. By the Newnham-road, between Porter's-lane and Badging Downs. Roadsides near Nash Court.

Geranium dissectum. Fields (clover especially) on the gravel, less frequent on the loam.

Geranium columbinum. Gravel-pits, in Badging and Cockset Woods; near Brogdale Farm; lower part of Bysing Wood, towards Luddenham Vicarage; plentiful.

Euonymus europæus. Bysing, Syndale, Sandbanks, and Badging Woods. Woods about Lee's Court and Belmont.

Rhamnus catharticus. Perry Wood. Hernhill Wood.

Rhamnus Frangula. Bysing, Syndale, Badging, and Perry Woods. Woods about Lee's Court. Frequent.

Ononis arvensis. Field beyond Cockset Wood. Fields near Norton and Rodmersham.

Ononis antiquorum. In Ham, Clapgate, and Graveney Marshes.

Medicago sativa. Field-borders in Luddenham, Stone, and Goodnestone.

Medicago lupulina. Chalk-pit behind Ospringe Vicarage, and in Lee's Court Park. Whitehill.

Medicago maculata. Roadsides about Davington, Luddenham, and Stone. Syndale Park. Porter's-lane.

Anthyllis Vulneraria. Whitehill. Dally Wood and woods about Belmont. Banks about Lee's Court, etc.

Melilotus officinalis. Hedge behind Sandbanks Wood, and near Teynham Church. Uncommon.

Trifolium subterraneum. Gravelly pastures behind the Union-house, and near Davington Priory.

Trifolium medium. Border of Perry Wood, below "The Pulpit."

Trifolium maritimum. Seawalls beside Oare and Faversham Creeks, and in Graveney Marshes.

Trifolium striatum. Gravel-pit behind the Union-house. Roadside on Boughton-hill.

Trifolium arvense. Bysing Wood. In the gravel-pit, Cockset Wood. Syndale Wood.

Trifolium fragiferum. Seawall of Faversham Creek. Ham and Graverney Marshes.

Trifolium minus. Seawalls. Gravelly pastures. Syndale and Belmont Parks.

Lotus major. Bysing Wood. Perry Wood. Hernhill Wood.

Ornithopus perpusillus. In Perry Wood, by the pathside to the Rose and Crown; sparingly.

Hippocrepis comosa. Borders of Dully Wood. Badging Woods. Woods about Belmont and Lee's Court.

Onobrychis sativa. Roadside, near Mr. Handley's, Hernhill. Banks about Whitehill, Belmont, and Lee's Court.

Vicia Cracca. Edge of Bysing Wood, towards Luddenham Vicarage. By the path from Beacon-hill to Stone. Sparingly.

Vicia angustifolia. By roads and paths in Bysing Wood.

Vicia tetrasperma. In all woods on the gravel, perhaps more frequent than *V. hirsuta.*

Lathyrus Nissolia. Roadside on Boughton-hill, near Mr. Woolwright's, and beyond Beacon-hill. Sparingly.

Lathyrus sylvestris. Hedge of the hop-garden, near the Turnpike-gate, Beacon-hill. Rare.

Orobus tuberosus. Borders of Bysing, Sandbanks, and Syndale Woods.

Orobus tenuifolius. Edge of Bysing Wood, towards Luddenham Vicarage.

The Vascular Bundles of the Stipes of Ferns. By T. Moore, F.L.S.

With respect to the supposed "new" character in Ferns to which attention is drawn by Mr. Leighton in the 'Phytologist' (p. 256), namely, the condition of the vascular bundles of the stipes,—a familiar example of which occurs in the well-known spread-eagle of the common *Pteris*,—I may mention, for the information of those who have not paid special attention to this subject, that this character was employed to a considerable extent, and was apparently much relied on, by Presl, in his 'Tentamen Pteridographiæ,' published in 1836, and has since attracted the attention of other authorities on Ferns,—for example, M. Fée in his 'Genera Filicum' (1851), where numerous figures are given. As a distinguishing character I think I may venture to say it is unsatisfactory, at least this is my experience; for not only does the condition of the vascular bundles vary at different elevations in the same stipes, but different stipes from the same crown present different conditions, the fact being that the most vigorous fronds are furnished with a greater number of these bundles, whilst the smaller fronds have fewer. I may mention, in illustration of the unsatisfactory nature of conclusions drawn from this character, a case which occurred during the last summer. A correspondent, who, like me, is firmly convinced of the absolute distinctness of *Lastrea spinulosa* and *L. dilatata*, obligingly sent me sketches of sections of the stipes, which he thought would probably furnish a more positive means of distinction than the characters now employed, in which conclusion he was apparently justified by having found in the plants he examined, that the former of these had only three bundles, whilst the latter had five bundles, somewhat differently arranged. The very first frond of *L. spinulosa* however which I examined after the receipt of this communication, showed the number and arrangement which had been pointed out as characteristic of *L. dilatata*; this happening, no doubt, in consequence of a vigorous frond having been selected for examination; for smaller fronds from the same root gave the three bundles which had been supposed to be characteristic of the species under examination. Similar results are familiar to those who have been accustomed to trace out distinctive characters in living plants. Hence I attach no value whatever to the statements and inferences in those writings relating to Ferns in general where this character has been employed, and where it has chiefly or entirely been drawn from an examination of foreign specimens (often mere fragments) in the herbarium; for unless one could be certain at what point of the stipes the examination had been made, and what was the comparative degree of vigour in the specimen examined, it is evident from the illustration just cited, that no safe conclusion could be drawn even as to the specific identity, much less the generic affinity (for even to this the character has been applied) of the plant. Without doubt there are resemblances to be detected; and in species in which the bundles are not suspended, but united into some peculiar form, there is less liability to such an amount of variation as would tend to mislead; but before the character could be relied on in distinguishing a species, there must be an assurance, which now there is not, (1) that the appearances presented by these bundles in every specimen of a given species, will be constant, and (2) that dissimilarity of character will be presented by cognate species. Its use for any purpose of generic definition, so far as my observations go, is still further out of the question.

One word on Mr. Wollaston's microscopic characters derived from the spores ('Phytologist,' p. 172). The figures given are different enough; but the concluding remark, that an experienced microscopist could see no differences in them, at least between two of the forms, should stand as a warning to those who would place too much reliance on observations of this nature. In truth, though one cannot legitimately argue against the use of the microscope in distinguishing scientific objects, yet nevertheless, practically, chaos must prevail in scientific botany if we are to make species among plants, of the stature of our *Filix-mas*, on characters which can only be found in their highly magnified spores.

Note on Lastrea spinulosa.—As some of our writers on Ferns seem to persist in doubting the occurrence of the true *Lastrea spinulosa* in Scotland, it may be useful to those of your readers who do not see 'The Ferns of Great Britain, Nature-printed,' to be informed, that in addition to the Dingwall habitat, recorded in the 'Handbook of British Ferns,' I have plants and specimens obtained from near Dunkeld by Mr. A. Tait; others from two habitats in Forfarshire, communicated by Mr. A. Croall; and others again collected by myself last summer in Dumbartonshire on the banks of Loch Lomond. Irish specimens of the same plants from the counties of Wicklow, Westmeath, and Londonderry, have been sent to me by Mr. D. Moore, of Glasnevin. The plant alluded to above is that narrow erect form of *Lastrea*, furnished with a few broad pallid scales on its stipes, and a prostrate, slowly creeping caudex, which ought not to be confounded with any form of *L. dilatata.*—T. M.

Pulmonaria angustifolia.

An Honourable Correspondent (the Hon. Fox Strangways) has very recently been so obliging and courteous as to point out to us the distinction between *P. officinalis* and *P. angustifolia.* To the same source we are indebted for a specimen of the latter. Mr. F. Strangways's object is to state that it is clearly "distinguishable as a species" from the former, and as a proof submits both a drawing of the two plants and a living example of the latter-mentioned. Continental botanists appear to have no doubt about their specific difference. The officinal plant, which is common in gardens, is described as having cordate-ovate radical leaves, with ovate stem-leaves. The narrow-leaved and rarer species, *P. angustifolia,* has ovate-lanceolate, elongate, rough-haired radical leaves, and lanceolate and pointed stem-leaves. The stem in the latter is almost simple, and nearly twice the length of that of the former. These distinctive characters are from a German flora. Sir James E. Smith appears to have understood these plants as specifically distinct. He says (E. Flora, p. 262) *P. angustifolia* is about twice as tall as the former (*P. officinalis*), from which it differs in the lanceolate shape of its *leaves,* especially the radical ones, which are a span in length, tapering and not spotted. He previously describes the root-leaves of the former as *ovate,* hairy, mostly speckled with white on the upper side, whence they have been thought to resemble the human lungs, etc.

In Cosson and Germain's 'Flore des Environs de Paris' there are three varieties of *P. angustifolia,* described as below :—

Var. *a, vulgaris ;* root-leaves lanceolate, very narrow, usually not spotted.

Var. *β, longifolia ;* root-leaves broadly lanceolate, gradually attenuated (tapering) below, spotted with white, often longer than the stem.

Var. *γ, latifolia ;* root-leaves broad, ovate, abruptly tapering at the base, spotted with white, often shorter than the stem.

Our Dorsetshire Correspondent draws our attention to the chief differential characters of the species as follows:—

First, the root-leaves of *P. officinalis* are decidedly cordate at the base and petiolate. The similar organs of *P. angustifolia* are elliptical-lanceolate, tapering at both ends, and pointed. Second, there are white blotches on the leaves of the latter and pale green spots on those of the former plant. Third, the flowers of *P. officinalis* are pale lilac; those of *P. angustifolia* are an intense dark blue. In Cosson and Germain the flowers are described at first red (before expansion, as in many flowers of this Order), then violet, and finally blue. Lastly, the common Lungwort flowers in February and March, the narrow-leaved Lungwort in April and May. Gerarde appears to have apprehended the striking distinctions between the two species. He names the one *P. maculosa* (spotted or dappled), the other *P. foliis Echii* (Echium-leaved). *P. officinalis* is not uncommon in gardens; as a wild plant it is rare. We once were shown it in an unrecorded station, not far from Yapton, in Sussex. We believe the Hon. Mr. Fox Strangways's station is new to the majority of British botanists, and we feel somewhat flattered by having the honour of announcing this to our readers.

Beech (*Common*) *a Native of England.*

"Materia cujusque generis ut in Gallia est, præter fagum et abietem." (*Cæsar in Bell. Gal.*) "The timber-trees of Gaul (France) are all found in Britain, except the Beech and the Fir." This passage in Cæsar has long been a puzzle to commentators and naturalists, and we do not pretend to be able to give a satisfactory solution of the difficulty. The *Abies,* or *Fir,* is not considered by any botanist to be one of our native trees. The *Beech* is considered a native by almost all botanists. Some misunderstanding has arisen from using the term *Scotch Fir* as a synonym of *Pinus sylvestris. Fir* is usually the equivalent for *Abies,* as *Pine* is for *Pinus.*

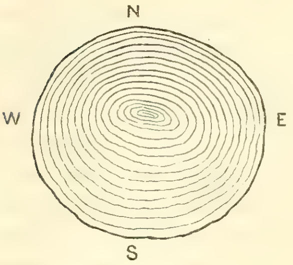
Every one acquainted with the subject knows that the Fir, or *Abies,* is an exotic; and most know that the Pine, *P. sylvestris,* is confined to the northern part of the island. In the south of England it is only found as a planted tree, not truly native. It is conjectured that Cæsar did not mean the Scotch Fir (*Pinus sylvestris*), but the Silver Fir or Spruce Fir, *Abies excelsa.* This conjecture is probably correct. We think, with all proper deference to Cæsar's evidence, that his sphere of observation was too limited, and his stay in Britain too short, to give him any claim to be quoted as an authority on the native productions of Britain. Cæsar passed rapidly through a portion of the south-east of England, more intent, we may assume, on the motions of the enemy than on the vegetable produce of the country. But admitting that he noticed every tree in his line of march, it is not improbable that there might be other trees besides those which he observed even in Kent. The Beech might have abounded in Berks, Oxon, and Bucks, although comparatively scarce in the counties of Kent and Surrey. The learned Whitaker tells us that the Beech was introduced by the Romans, and states as his grounds for this opinion that the British word for Beech, which he says is *foighe, faghe,* or *faydh,* is derived from *fagus.* The Cambro-British word for Beech, according to Davis (see Welsh Botanology, *sub verbo* Beech), is *ffawydden.* This may be from the same root as the Latin *fagus.* But it is rather slender proof that the Romans introduced the Beech into Britain. We know that the Beech is now a native of Britain. Where it gets possession of the ground it retains it. Its shade is so thick that scarcely any other seed will grow under it but its own, and in such places the seedling beeches are very abundant.

When it first got a footing or a rooting on our chalk-hills, neither history nor etymology, nor even geology, appears to be in a condition to give us any satisfactory information.

Density of the Rings of Timber.

To the Editor of the 'Phytologist.'

Sir,—In your January number for the present year, "Sylvanus" inquires respecting timber grown on the north sides of hills and on the north sides of trees. It is pretty well understood that the sun's influence affects the growth of trees and assists their development; and therefore trees grown on the northern declivities of most hills being of slower growth, the annual layers of woody matter are somewhat thinner and consequently form denser timber. I have frequently observed a sensible difference of the growth of the annual layers of wood on the different sides of most kinds of trees, as attempted to be exemplified in the marginal sketch of a cross-section of the trunk of a tree. It will be observed that the pith in the sketch is shown to be nearer the north side of the stem, and that the annual ring-growths are broader on the southern side of the tree. This result is not so obvious at the junction of the stem with the root as it is at a few feet upwards; apparently because the roots draw nourishment from below the surface of the soil, where the sun has less power, and from all sides of the tree alike; and it is only where the sun can act on the stem that the difference is more clearly discernible.



During this winter I have had many Ash and other trees on a south-eastern declivity, of twenty to thirty years' growth, cut down, and in most of the Ashes the annual rings are more fully developed on the southern sides of the trees. In the Larch this difference of sides is not so perceptible, owing, I suppose, to the spiral twist of the fibres enabling the whole to be equally acted on by the sun.

The observations of some of your experienced correspondents may tend to corroborate or correct this view, for the benefit of your readers, including W. D.

Cockermouth, Feb. 27, 1856.

Observations on the List of Common Plants.

The undermentioned remarks on the List printed in our May Number have been kindly contributed by correspondents.

A reverend contributor from Devonshire writes as follows:—

"I send you a few notes on your List of 'Common Plants.' Of course I can only speak of our own district, the vicinity of Ilfracombe, but perhaps they may not be unacceptable.

"*Papaver dubium* I have not met with about here. *Draba verna*, ditto.

Helianthemum vulgare, ditto. *Drosera rotundifolia* is far from common. *Silene inflata* I have twice seen single plants of. *Lychnis Githago* very unfrequent. *Radiola* I have never seen, nor *Malva moschata.* As far as my experience goes I should certainly set down *Hypericum perforatum* as the most common; I have found it almost everywhere I have been. The white-flowered variety of *Erodium cicutarium* is more common with us than the ordinary plant. *Geranium pusillum* I have not met with. *Genista anglica* is rare. *Medicago lupulina* I have not seen. All the *Trifolia* in your list, I believe, are found here, though I have not put them all down in my list; *Trifolium arvense* does not occur in large quantities. *Comarum* I have not seen. *Alchemilla* is *said* to grow on the Torrs, but I have not been able to find it. *Peplis Portula* I have only found at Lundy. *Montia* is rare. *Scleranthus* I have not seen, nor *Saxifraga granulata. Sherardia* is rare, as far as I know; and *Asperula* unfrequent. I have not seen *Valeriana.* (I ought to have mentioned that *Fedia carinata* was found at Hele by Mr. Borrer.) *Centaurea Cyanus*, rare. *Bidens cernua*, ditto. *Petasites* is abundant here; not so *Tussilago. Chrysanthemum segetum* I have not seen, or *Menyanthes*, nor can I ascertain where in this district it grows. *Gentiana Amarella* not near here; it grows at Northam. *Veronica Anagallis*, strange perhaps to say, I have never seen anywhere. *Lycopus* does not grow about us; nor *Galeopsis Ladanum*, which is common in South Devon; nor *Scutellaria galericulata. Symphytum* I have not seen, though it is found. No *Utricularia. Primula veris* is rare in Devon, and especially here. No *Gymnadenia. Orchis Morio* I have not seen nearer than Clovelly. *Orchis latifolia* ditto. *Polystichum lobatum* is rare, and *aculeatum* not within eight miles or so.

"You put a query after *Adiantum nigrum;* as far as my experience goes, I should say it is decidedly common, and is most abundant here. I have seen it far north and in all parts of England where I have been."

Another esteemed contributor offers the following exceptions, arranged systematically, viz.:—

"A. Too rare in Scotland, or very thinly scattered:—*Orchis Morio:* is this Scotch? *Saxifraga granulata:* a rather scarce species. *Euphorbia amygdaloides:* Scotch? *Hordeum pratense.*

"B. The following show more or less affinity to limestone; I have certainly not found them common, nor far from lime:—*Helianthemum vulgare. Hypericum hirsutum. Galeopsis Ladanum. Plantago media. Glyceria rigida. Avena pratensis. Habenaria chlorantha.*

"C. Prefer (exclusively?) saline localities:—*Carex distans* and *Juncus compressus*, neither common.

"D. Critical species unsafe to admit, as not having been sufficiently looked for:—*Geranium pusillum. Arctium Bardana. Thymus Chamædrys. Glyceria plicata. Hieracium cæsium.*

"E. Plants which anybody would be more likely to mention in a list of rarities than not:—*Chenopodium rubrum. Allium vineale. Scirpus sylvaticus. Eriophorum latifolium:* 'rare,' Bab. Man. *Carex curta. Carex vesicaria:* rare in 'South'? *Lycopodium Selago.*

"F. Variously impeached:—*Malva rotundifolia. Anthriscus vulgaris. Rumex Hydrolapathum* (only twelve provinces). *Arum maculatum. Poa nemoralis. Triticum caninum. Papaver Rhœas:* not so common as *P. dubium* in north and west. *Malva moschata. Hypericum dubium:* rare in South? *Tragopogon. Salix fragilis alba purpurea viminalis. Potamogeton pectinatus pusillus? lucens. Myosotis collina.*

"G. *Saxifraga tridactylites* and *Hieracium umbellatum* are not included. Does the compiler of the List think them less common than *S. granulata* and *H. cæsium?* My experience is quite the reverse. I also thought *Eriophorum vaginatum* much more common than *E. latifolium.*"

On comparing the above remarks with the printed List, it appears that about 40 species are liable to expulsion from said List, or about one-tenth of the plants supposed common are not so. We hope that our enumeration of reputed common plants will not share the fate of the Mussulman's pig; yet we fear that if other correspondents cut off so liberal slices, the whole will eventually disappear, as the pig did, from the head to the tail. Some have requested us to tell our readers how they can avail themselves of our List in order to promote the knowledge of the range of plants. We submit to such the remarks of our two acute correspondents. If such will take the trouble to compare the Floras of their respective localities with the enumeration published in our May number, and send us their notes, whether these be affirmative or negative, something promotive of this branch of the science will be elicited.

Reviews.

The Ferns of Great Britain, illustrated by JOHN E. SOWERBY. *The Descriptions, Synonyms, etc., by* CHARLES JOHNSON, Botanical Lecturer at Guy's Hospital. Uncoloured edition, 6*s*.

It is, we believe, unusual to review the same work twice in the same periodical; and as the above publication was amply noticed in our pages several months ago, we had some hesitation to obtrude it again on the notice of our readers. Circumstances have however arisen which have induced us to depart from the customary usage followed in such cases. The eminent pictorial abilities of Mr. Sowerby, his ancestors, and of all the collateral branches of his family, so celebrated in English natural history, are matters of public notoriety and history. Our commendation would savour too much of the common adage, *of carrying coals to Newcastle,* to be of any use to him. We just repeat what has been already stated (see 'Phytologist' for June, 1855), that the work above mentioned contains most characteristic and beautiful representations of all the species of British Ferns (49), with 88 pages of letterpress by the learned Professor of Botany at Guy's Hospital, and all at a price which apparently might set competition at defiance. But when the recognized merits of the author and illustrator are considered, we think it is utterly impossible for any parties to produce a work on this subject which shall be equally valuable or useful as that which is the subject of this notice. We may regret that the rival publishers do not give us something on another branch of the general subject of natural history. Surely the entire field is not yet occupied; the materials are not yet all exhausted. Even in the botanical department, are there no Orders that would afford scope, and payment too, for illustration and investigation? The number of works exclusively limited to the British Ferns is probably not far short of a dozen. A new field of labour should be sought out, and we recommend the subject of *Aquaria* or *Vivaria.* This would afford our ingenious observers an opportunity of displaying their knowledge of the obscure and little-noticed forms of both vegetable and animal life. We conclude this notice of Mr. Sowerby's cheapest work on Ferns, by recording it as our honest conviction that a cheaper book cannot be produced. The plates, which are from engravings on copper, are 49, and the letterpress 88 pages (five sheets and a half, demy octavo), all sold at six shillings; or three halfpence a plate, with letterpress to the bargain. The eminence of both author and illustrator are a sufficient guarantee that the purchaser will have a work on which he may rely, as one of acknowledged authority, and as a reliable reference in all cases of hesitation or difficulty.

British Poisonous Plants. By Charles Johnson, Botanical Lecturer at Guy's Hospital. Illustrated with 28 coloured Plates.

This is a very well-timed publication. Most of our readers are aware that a fatal case of poisoning occurred only a few months ago. Three gentlemen of Dingwall, in Ross-shire, were poisoned by eating, in mistake, the roots of Monkshood instead of Horseradish. This is probably a singular instance of accidental poisoning. But cases of poisoning by eating the berries of Deadly Nightshade, Woody Nightshade or Bittersweet, or the berries of the White and Black Bryony, are unhappily too common. Several Umbelliferous plants often cause similar fatal or dangerous accidents: some are mistaken for Parsley, others for Celery, and some for Watercresses. Also a great number of Monocotyledonous plants are poisonous. The *Arum*, Wake-Robin ("Lords and Ladies" as these are commonly called), is among the most acrid and dangerous. Many years ago we heard that the roots of this plant, if boiled a time sufficiently long to dissipate the poisonous acridity, were not only innocuous, but nutritious. We tried the experiment on about a dozen roots, and after submitting them to the influence of boiling water for a great many hours—days we may say, at the end of this period they were found to be quite as acrid as ever. It is said that they can be deprived of these qualities by baking. We have seen boys eat the berries of the Yew with impunity. We have often eaten them, and never experienced nor knew of any ill consequences whatever as the result of this indulgence. We know however that cows have been poisoned by eating of the leaves of this tree; and we cordially assent to the recommendation of our author, who counsels that the berries should be removed from all accessible parts of the tree, either by the application of the shears or birch-broom. We are much obliged to Mr. Sowerby for his beautiful little book on British Poisonous Plants, and we cordially recommend it to the public in general, and to our readers in particular. The figures (twenty-eight) are most characteristic of the subjects which they represent, and they are coloured very carefully. In reference to the text it will be sufficient to state that it is by the learned Professor of Guy's Hospital, and that it is as little as possible encumbered or obscured by technicalities.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Sir,—In the December Number of the 'Phytologist' (p. 190) you ask for some particulars about *Phalaris paradoxa.* I must refer you to the 'London Journal of Botany' for the year 1847, in which its discovery was first made known, under the name of "*Alopecurus utriculatus,*" for which Grass it was then mistaken. Mention was also made of it in the former series of the 'Phytologist.' *Phalaris paradoxa* is of course described in the 'Flore Française' of Lamarck and De Candolle, and in other Continental Floras.

As I am writing I may mention that I have observed, at various times since 1849, the American species *Claytonia perfoliata* established in a hedge-bank at the entrance of Bure-lane, from Mudiford, near Christchurch, Hants. The garden of the late Sir G. Rose is in the neighbourhood; but the old gardener to whom I showed the plant was not acquainted with it, and had never grown it during the long period that he had worked for his employer. I saw abundance of the plants there a few days since, and consider the species to be more than imperfectly naturalized in the locality.—Very truly yours, JAMES HUSSEY.

Salisbury, Feb. 7, 1856.

In reply to "Viator" (p. 279), respecting the Glastonbury Thorn, I beg to send the following note. The historic evidences are numerous and authentic, that when St. Joseph of Arimathea, with his companions, proceeded from Palestine, they passed up the Great Western Channel of Britain, and landed on the Island of Avalon, so named by the Romans—"Insula Avalonica," being surrounded by water from the Western Channel. The place where St. Joseph landed is recorded and known by the existing remains of an enbankment, denominated in the ancient maps of Avalon, the Sea-wall. It is situated on the northern side of a hill formerly called Worral Hill, or Weary-all Hill, at the present time a park, now or lately belonging to William Strade, Esq.; and on the western eminence of this mount was erected the first Christian standard in Britain, the exact spot having been commemorated at a very early period by the planting of a Hawthorn-tree brought from a southern climate, which put forth its flowers about the advent of the Christmas festival, that being in fact the period at which it blossoms in its native country of Palestine. An ignorant and credulous age did not lose sight of so extraordinary a phenomenon, and accordingly it was speedily invested with the obscurity of a superstitious legend. The tree was cut down in the reign of Charles the First by a Protestant soldier, it being regarded as a relic of Papal superstition; the stump, or root, remained visible so late as the year 1750, the spot where it grew being marked by a stone fixed in the ground, bearing this inscription: I. A. A.D. XXXI. Several trees have since been propagated by means of grafts from the original: the oldest at present existing, and taken from Worral Hill, stands near St. John's church, at Glastonbury, and was planted about the year 1600; others are preserved in the town and country adjacent; and there was a person in the neighbourhood who lately had a nursery, and sold them for a crown apiece.

It does not appear to differ from the common Thorn (*Cratægus Oxyacantha*), excepting in the stipules being lunar-shaped, toothed, and very large, and in the period of its flowering. A short time since a gentleman in the neighbourhood of Bath had in his garden a stock of an old Hawthorn, on which was engrafted several different varieties of the same plant, together with the Glastonbury Thorn; none however showed signs of active life at the Christmas season, except the latter, which was in full bloom. In this case temperature had evidently nothing to do with it; neither was it owing to the growth of new spongioles (according to others), since the dormant and active grafts are supplied with sap from the same source; it must be therefore from an inherent disposition in the plant itself. It is the appointed period when its dormant energies must awake, its organic sensibilities be quickened, its circulation be commenced, its secretions be established,—in short, when its functions shall resume their full activity. B.

Bath, March, 1856.

Sir,—On a recent examination of a parcel of plants received last year from the London Botanical Society, I have been much struck with the appearance of a Fern contributed by Mr. Kirk, of Coventry, and labelled by him "*Pteris aquilina*"; and I wish, through the medium of your pages, to ask him whether he is quite clear as to its being that species. The specimens, he says, were of spontaneous origin in an excavation made for a plunging-bath at Coventry, and may be supposed to be drawn up and attenuated from the peculiarity of the situation; but making allowance for this, the whole character of the fronds and of their growth strikes me as so different from that of *Pteris aquilina*, that I feel quite puzzled, and shall be glad to know whether Mr. Kirk, or any contributor to the 'Phytologist,' can throw more light upon the matter. Since writing the above I have found a notice in Sowerby's 'English Botany' of a delicate variety of *P. aquilina*, found on moist rocks, etc., near the sea. I was not aware that such a variety existed, not having seen it mentioned in any other botanical work; and though probably Mr. Kirk's plants are to be referred to it, they depart so strangely from the common type (in growth they more resemble *Cryptogramma crispa*, though unlike it in other respects) that I should still be obliged for information respecting them. ANNA RUSSELL.

Kenilworth, February, 1856.

Delphinium cardinale.—Sir,—In the 'Botanical Magazine' for December, 1855, there is an exquisite drawing and detailed description of this beautiful novelty. It was discovered by Mr. Lobb in California, and introduced into the gardens of Britain by Messrs. Veitch and Sons, of the Exeter and Chelsea Nurseries. We are delighted to see it, because it is a handsome species of a genus abounding in deservedly popular flowers; but chiefly on account of its colour, which is a rich scarlet, except the petals, which are deep yellow. The colour of all our Larkspurs hitherto known is blue or purple or white. Scarlet and yellow, as colours of *Delphinium*, have hitherto been unknown. *Chromatologists* tell us that there are only two series of colours in flowers, viz. the *Cyanic* (blue series) and the *Xanthic* (yellow series) [see below]. Will the learned in such matters inform a novice to which of these series the colours of the plant in question belong? SCHOLASTICUS.

A "*Youngling*" sends us an account of a scarlet Larkspur as above, and the subjoined extract from some author. He wishes to know if there be an excess of acid in the said plant. The colours of the species of *Delphinium* are usually blue, or some shade of blue, or white or purple. Can any of our correspondents enlighten this youth?

"*Colours of Plants.*—The only two fundamental or primitive colours in plants are blue and yellow, or, in other words, *anthocyane* and *anthoxanthine*. . . . The colours of flowers can only change according to the variations of which the blue and yellow are capable. Blue passes into red by means of acids, and hence presents all the colours resulting from the mixture of blue and red: these are called the *Cyanic series* of colours. The yellow colouring matter also reddens by acids, and yellow flowers pass into red, and present all the shades intervening between these colours: these colours constitute the *Xanthic series* of colours."

Corydalis solida (see 'Phytologist,' No. 4, New Series, August, 1855, p. 96).—To the Editor,—Sir,—I can assure you that *C. solida* is wild, or perfectly naturalized, in a wood at Totteridge, Herts. The gate leading into this wood is on the Barnet side of Totteridge Green. In the same wood we (a small party of botanists, who procured access through the friendly intervention of Mr. Mackay, of that *ilk*, as they say in Scotland) collected *Crocus vernus* (out of flower). The *Corydalis* was in abundance. The *Crocus*, some weeks before, coloured large patches of the turf with its bright blue and striped blossoms. Patches of this latter are interspersed in various parts of Totteridge, and the area of the spots where it grows amounts to several acres in all. In the same locality we collected the *Red Primrose.* In another park, on the other side of the Green, there grows abundance of *Fritillaria Meleagris.* This fine plant was still more abundant in another part of this grassy slope, nearer to Mill Hill. We had also specimens of *Narcissus biflorus*, which grows in a patch near the bottom of a field through which the foot-path from Totteridge to Mill Hill passes. We were recently told that *Lilium Martagon* grows in a wood in the same neighbourhood, and that it has grown there at least for two generations. The plants on Totteridge Green and in the ponds thereon are rarities of no ordinary occurrence; for example, *Mœnchia erecta*, *Neottia æstivalis*, etc., on the Green and in the ponds; *Nymphæa alba*, *Acorus Calamus*, *Ranunculus Lingua*, *Villarsia nymphæoides*, *Menyanthes trifoliata*, *Hottonia palustris*, several *Œnanthes*, *Lemna trisulca*, *L. gibba*, with the two other more common species. *Linaria Cymbalaria* grows plentifully on the old brick walls, and *Viola odorata* and *V. odorata*, var. *alba*, in the lanes. We also ascertained that the old locality of Muswell Hill, Middlesex, still produces the wild Tulip: see 'E. Botany,' vol. i. t. 63, which appears to have been its first notice as a British plant. Withering indeed describes it in the third edition of his valuable work, but refers to Sowerby. Smith says, "It is perfectly wild at present, though the bulbs run so far into the ground that they rarely flower." We found one flower only, though there are in this spot hundreds of plants. We hope none of your readers will begrudge the space thus occupied in the reproduction of a station and plant known in the lifetime of our *ain auld forbears.* This rediscovery terminated a short botanical excursion of no ordinary interest. W. P. and A. I.

Note on West Surrey Plants.—If you print my *Plantæ Rariores* of North-western Surrey, it may be as well to add *Cirsium anglicum* (Carduus pratensis), which has two good habitats in the district; and also (though belonging to its extreme point) that decidedly western plant *Scilla autumnalis,* which I have seen growing on Moulsey Hurst, where it grew in Ray's time. J. S. M.

Sorb.—"It is singular," Mr. Loudon states, in his great work on the 'Trees of Great Britain,' "that, not far from one of the very few habitats in which the true Service (Sorb) is to be found in a wild state in Britain, viz. Wyre Forest, in Worcestershire, the remains of a Roman villa were some years ago discovered (see Arch. Mag., ii. p. 94). It is not improbable that the tree referred to may be a *descendant* from a Service-tree planted in the orchard belonging to the adjoining Roman villa." The present existing Sorb is not likely to leave any posterity. SYLVANUS.

Leontodon palustre.—At Roche Abbey, on the 20th, I gathered *Myosotis sylvatica, Carex digitata,* and *Melica nutans* together. Here I find *Leontodon palustre* growing with *L. Taraxacum,* to all appearance very distinct. The plant is prostrate, the leaves close on the ground, the stature low, the exterior of the marginal florets bright red-orange, and the flowers small. The common one has its foliage more erect, and the flowering stems thicker; the calyx or involucre quite another thing. G. E. S.

What is the true *Valeriana officinalis,* Linn.? and what is *V. sambucifolia,* Mikan, adopted by Koch and Babington?

Does *Sonchus palustris* still grow "in a wild lane near Wellington, *fide* E. Lees, Esq.?" Comp. Fl. Shrop. p. 390.

Death of Dr. Ernest Steudel.—It is with deep concern that we have to announce to our readers the death of Dr. Ernest Steudel, of Esslingen, Würtemburg. This most estimable man, whose life has been laboriously occupied in the cause of Botanical Science, died suddenly, at a rather advanced age, a few days ago, from disease of the heart. It would be scarcely possible to over-estimate the value and importance of such works as his 'Nomenclator Botanicus' and his 'Synopsis Glumacearum;' the compilation of the former was attended with an immense amount of toil and sheer labour. Dr. Steudel, whose loss we deplore, leaves behind him the character not only of an eminent botanist, but also that of a gentleman, an accomplished scholar, and a Christian.

Communications have been received from

Rev. Gerarde E. Smith; L. P.; William Bennett; R. M. S.; H. B.; Rev. Hugh A. Stowell; Sylvanus; Scholasticus; James Backhouse, jun.; Joseph Woods, F.L.S.; James Hussey; W. Borrer, F.L.S.; Querist; W. P.; Rev. T. F. Ravenshaw; T. S. R.

Remarks on the Nationality or Nativity, Denizenship or Citizenship of Plants.

Man, the sole species of the genus *Homo,* is alone cosmopolitan. Many other animals are more or less so, and the domesticated have generally a much wider distribution than the wild or unreclaimed. The *red grouse* of Scotland, *Tetrao scotica,* is peculiar to the British Isles, but it is a rare example of a species having a very narrow sphere. Animals of the temperate and Arctic regions have a more enlarged range than those that are tropical; and most animals are found in more than one country. Some migratory birds come here to breed, and having accomplished this, pass the greater part of the year in distant lands. These belong to two countries at least, being natives of one and inhabitants of another. In this plants are unlike animals—they are not migratory; and the examples of plants confined to one country or locality are still rarer than similar examples in the animal kingdom. In the human family there is no question about the nativity of an individual. He cannot be both Cambrian and Anglican,—he cannot be both a Welshman and an Englishman,—he must be either the one or the other; and the question is decided by the place of his nativity, the country where he was born. When we speak or treat of the nativity of animals and plants, we always understand what is, by scientific men, called species; we never mean individuals. Hence arises the obscurities and misapprehensions among the unlearned when they hear the expressions indigenous, naturalized, native, etc., applied to plants and to animals. Even the learned experience some difficulty in the correct employment of these terms. It has been shown that a species (not an individual) in the animal kingdom may be common to several countries or kingdoms, and that the converse is very rare, that is, where one species, as the Scottish grouse, is confined to one country. In the vegetable kingdom such examples are still rarer. For example, few species of plants are natives in this narrow or exclusive sense, viz. found in one single country and nowhere else. If we estimate the spontaneously produced plants of Britain at 1500, we surely cannot estimate the pure natives, viz. the plants which grow naturally here and nowhere else, at so many as 1-100th part of the whole. Is it probable that fifteen plants are exclusively confined to this country? Is there one plant, or rather one species of plants, which has no representative in some other land? Is *Vicia lævigata* confined solely to the pebbly beach at Weymouth? Is *Primula scotica* limited to Sutherlandshire? Is there no Primrose in Norway agreeing with its Scottish relative in all essential characteristics? Is the Scottish Bird's-eye Primrose really distinct from *Primula farinosa* of Yorkshire and the north of England? Is it an unreasonable assumption that a species may have two native countries, or, what amounts to the same thing, may be common to two lands? If not originally a native of both, it has grown from time immemorial in both; it was either created in one or in both of these places. If only in one, it was conveyed in the days of yore or in some subsequent time to the other. It is immaterial whether the means of transport were accidental or intentional. The causes of its introduction may have been natural or economical.

Let us suppose that a given plant, say *Galium verum*, which is common both to England and France, was originally created in the latter kingdom only, and migrated hither at an early period, probably long before the earliest human inhabitants of Britain landed on these shores. Is *Galium verum*, on this supposition, a native or a denizen? In the case of a *member* of the human family, the simple fact of being born in any given country is a sufficient proof that the supposed *member* is a native of that country. No doubt grave inconveniences would occur if plants were to be classed according to this law; for, as has been noticed, in the vegetable kingdom we register the phenomena of species or groups of beings, and not of individuals. In this sense our supposed plant is a native of both countries. If the other assumption be preferred, viz. that it is a native originally of only one of these kingdoms, to which of them is it assignable, England or France? It may be supposed that it could as easily migrate from England to France as from France to England. It may be truly affirmed that we have no data to warrant us in assigning the nativity of *Galium verum* exclusively to France or to England. We can say that it has been produced spontaneously in France and England for hundreds, probably for thousands of years, but we cannot say either that it did not or that it did originate in the one or in the other kingdom; nor can we affirm that it did not nor that it did simultaneously appear in both. It is now a native of both countries, but there may have been a period when it existed in neither.

Let another plant, say the common Apple-tree, be assumed. This, it is also well known, is about equally common in both France and England. Yet there is in this case a greater probability that it may have existed in France previously to its appearance in England; and if this be granted, there is a greater probability that it owes its propagation in this country to human means, than that its immigration was the result of accidental causes. If its original locality be neither the north of France nor the south of England, it is probably an introduced plant. Botanists fix its centre of distribution in a more southern locality than either of these two localities. As cultivation ameliorated the climate, its range has extended, especially to the north and the west. It may, with many other plants, be still widening its extent of radiation from its original home, if it ever was limited to a small tract in the centre of its present range. But this is a fact incapable of proof. We can prove that certain plants are acquiring a wider range; but can we prove that they originally proceeded from a single plant or from a single pair, or from a very limited space? We strongly suspect that this is incapable of proof. The Crab, or Wild Apple-tree, is far from uncommon in the southern and central parts of England, but it is scarce in Scotland. This fact indicates a more southern centre of distribution than even England; yet it does by no means satisfactorily prove that it is not native in Scotland. It may be suspected that the terms *native* or *indigenous*, as applicable to plants, are not received even by botanists in the same sense. A spontaneous production is held to be native by some. A plant established a thousand years will seldom have its nativity challenged. Again, a widely distributed plant is usually considered indigenous. The Apple-tree is called a native, the Pear-tree has at best but doubtful claims to this distinction; yet they are both distributed over the same countries, and can both bear nearly the same atmospheric changes. The Apple-tree is only rather more plentiful, or more examples in a wild condition are found; it is also in the occupation of a greater range. Here it extends from the south to the north of England, being very rare in a wild state in Scotland. The Pear-tree is not of so frequent occurrence as the Apple-tree is; fewer examples are found in a given tract. Its range is also more limited, extending probably only to the middle of England, being as rare in the north of England as the Apple-tree is in Scotland. On these two facts the nativity of the Apple-tree and the non-nativity of the Pear-tree are inferred. Are the facts sufficient to warrant the inferences? The Apple-tree may have been introduced, though very long since; so may the Pear-tree: the latter may have been a denizen of this country as long as the other. It may be assumed that both can propagate themselves either from accidentally distributed pips (seeds), or from such plants as may have been planted on purpose. That the Pear-tree has increased without the aid of human agents we have as certain, though not so many proofs, as in the case of the Apple. Old Pear-trees have been seen in hedges, accompanied with young ones; the ancient trees have disappeared and the more recent ones have taken their places. If the distribution of the Pear-tree is to be ascribed to the orchard, to what cause are we to ascribe the distribution of *Senebiera didyma* and similar species which are not said to have been cultivated for use, and certainly never for ornament?

If any one will take the pains to run his eye over a list of English plants, he will probably find that four-fifths of the species classed under the names of alien or denizen are cultivated, or have been cultivated, either for utilitarian or ornamental purposes. He would be thought a bold man who should assert that the Pear-tree was originally introduced and that the Apple-tree was not (we neither affirm nor deny the fact, we think it incapable of proof, either in the affirmative or in the negative). Who doubts that the Apple-tree, whether original or introduced, has the ability of self-propagation, and who denies the same power to the Pear-tree? Few, we opine, would ask this, or consider it a doubtful question: this is not incapable of proof. If the term native is to be restricted to such plants as are unquestionably indigenous, or have existed in this island ever since it emerged from chaos or from the domains of Neptune, our list of British native species would be very short. If all probably introduced species are to be excluded from our catalogues, the number of indigenous species would be reduced to one-half or probably to one-third of the number growing spontaneously.

Most of our gregarious plants are probably indigenous, such as Heath, Sedges (*Carices*), Rushes, and many Grasses. Some of the last-mentioned family, are certainly introductions. Few *Carices*, it is to be presumed, are so, because they are worthless as economical plants, but some of *them* have probably been introduced. How many of the trees in our parks, woods, hedges, and homesteads, to omit orchards and shrubberies, are of British origin? The half of them? Probably not. Nine-tenths of our annual weeds depend on an artificial condition of the soil, and cannot, in strict consistency, be deemed natives while botanists exclude plants that grow only on artificial erections, such as walls, roofs, ruins, or in hedges, woods, etc., for these annuals are dependent on an artificial condition of the soil.

Holosteum umbellatum and *Saxifraga tridactylites* are instructive examples of the distribution of plants, assuming that their Continental habitats are correctly given, and if it be universally true, as we believe it is, that they are confined to roofs and walls in England. In the Continent the usual places of growth of *Holosteum umbellatum* are fields, waysides, and walls, etc.; warm declivities (*sonnige Abhänge*) and rocks produce *Saxifraga tridactylites*. The plants are both self-propagated, but they grow on artificial erections or in ground in an artificial state. If they originally grew on the ground in England as they do on the Continent, how comes it to pass that they are now found chiefly, if not exclusively, on walls and roofs? *Sedum album, S. dasyphyllum, S. reflexum,* and *Sempervivum tectorum* grow commonly, even in the Continent, on roofs and walls. In Southern Germany *S. dasyphyllum* grows on rocks. On the Continent rocks are stated to produce *Sempervivum tectorum,* but by the habitats, walls and roofs being placed before rocks, it may be presumed that the usual habitats are the former. Can it be said that all these plants would not grow on rocks in England, if anybody thought it worth while to plant them there? We know that they are planted on walls where they live and increase.

The Houseleek is common in Gothland, *teste Linnæo,* and its localities, of which he reports many in his journey through that island, are invariably such as they are here, walls and roofs. It is also far more common in Scotland than in the south of England; and we have seen that it grows on rocks in Germany, though roofs and walls seem to be its choice. In Gothland it is not stated that it grows on any places but on roofs and walls. Why should not *Sedum album, S. dasyphyllum,* and *S. reflexum, Saxifraga tridactylites* and *Holosteum umbellatum,* be all united under one category, whatever that may be, instead of forming nearly as many distinct classes as there are plants? We have never seen these plants except on artificial erections; we have never heard of their being collected except from some artificial habitat or artificial condition of soil. *Sedum album* has been reported from rocks at Malvern. There are many more examples that might be given, but these are enough.

There is another mural plant, viz. the Wallflower, which appears to be confined solely to artificial erections or ruins, not only here but also on the Continent. Its habitat in France is *sur les vieux murs;* in Germany, *auf alten Gemäuern im Rheinthale* (on old walls in the Rhine Valley). Where is the native country of this plant? In Europe, or in Africa, or in Asia? It will be difficult to fix its *solum natale* by its habitats. We know something of its history. It was a favourite flower of old, as it still is; it was cultivated then as it is now. It may have migrated from the garden on to the garden-wall, and hence to the castle, to the church-tower, and to similar places. But who is to decide the question of its nativity? Have we any data for the adjustment of the conflicting claims of England, Germany, and France? Enough has been advanced to show that nativity and spontaneity, as these terms are generally applied, are not synonymous or convertible words. We can ascertain the latter character; the former, in many cases, is beyond our ken. The period when these were introduced, if they were introduced, is a remote one; and all attempts to ascertain the *quo* and the *quomodo* will be futile.

In fine, it appears now to be impossible to ascertain the nativity of a large portion of our plants. Their number is increasing, and will probably continue to increase. We know the history and the geography of the recent importations, and there is no reason for depreciating well-directed efforts to obtain as much information respecting the migrations of plants which have been established here for hundreds and thousands of years. But who can tell when the Yew, or the Ash, or the Poplar, or the Chestnut, or the Pine were introduced, if they were introduced? We do not depreciate the investigation of such subjects, we would prepare the way for them by stating a few simple facts in reference to the distribution and habitats of plants. We cannot now enter into the *cui bono* part of the question, this we must leave for another occasion. We fear we have already exceeded our bounds.

Statistics of the Order CRUCIFERÆ, *with the Periodicity, Duration, Habitats, and Range of the British Species of this Order.*

The *Cruciferæ* are as remarkable for the number and utility of the species which the Order comprehends, as for their extensive horizontal and vertical range, and for the variety of habitats in which they are found. The Order is chiefly European. Its census, given by Professor De Candolle in 1821, is subjoined, as adopted by Dr. Lindley, viz. 344 species are found in Europe, from the shores of the Arctic Ocean to those of the Mediterranean; 45 belong to the southern or African shores of the latter-named sea; 318 are said to belong exclusively to Asia; 133 belong to the southern hemisphere, including New Holland and South America; 53 belong to North America and the adjoining islands; and 35 are common to various parts of the world. Since 1821 the number of known plants has been doubled. If we double the *Cruciferæ* known, then the estimated number known now (1856) will be 1740. But if we assume that the number of Phænogamous plants, described or discovered, is about 100,000, the number of Cruciferous plants might be estimated at upwards of 4000, assuming that the *Cruciferæ* are 1-25th of the Phænogamous species. In the British islands the number of Phænogamous plants (see last edition of the London Catalogue) is 1371, and if we allow 29 for the excluded species, 1400; the number of *Cruciferæ* in the same catalogue is 70, and therefore the Cruciferous plants amount to 1-20th of the Phænogamous vegetation of Great Britain and Ireland. As these plants abound in Europe more than in the warmer regions, probably 1-25th is the proportion they bear in the general or universal Flora of the whole known world, or they constitute 1-25th part of the vegetable kingdom, and consequently amount to about 4000, estimating the number of known species at 100,000. We know that 70 species are found in the British Isles, and we have reason to believe from the history of the plants of this Order that their number is on the increase among us. Several species have been added during the last few years to our lists of British plants, and we are not aware that any of them has recently disappeared.

These are the statistics of the Order, and they are precise and definite only in the species growing among us. Data are wanting for equally satisfactory statements in reference to the numbers and proportion of *Cruciferæ* in the general Flora of the globe. What is to be here advanced about the periodicity, duration, habitats, and range of the species is to be understood as limited to British species, and to their accidents in Britain.

We intend at some time or other to give a series of articles on these physiological and geographical properties of plants in general which we express by the technical terms periodicity, duration, range, and habitat. By *periodicity* is to be understood the time or period when a given plant is in flower, or when it perfects its seeds; *duration* implies the extent of time during which any given plant exists as a living being, or organism, as some would express it; *habitat* means the general habitation of the species, the situation on the soil, where it grows; and the *range* is its extent over the earth's surface, either horizontal or vertical. In all the four seasons, in every month of the year, even in our northern latitude, some at least, and often several, species of the *Cruciferæ* are to be found in flower. The Shepherd's Purse is always in flower, and generally in fruit also, except when the soil has long been bound up by severe frost or covered by a thick coat of snow. *Draba verna* and *D. aizoides* appear in March usually, and in very mild seasons in February, or even in January: the former was noticed as early as the 3rd of January, in the year 1853; the latter is one of our most local plants. *Cardamine pratensis* is rarely later than the end of March, and *C. hirsuta* or *sylvatica*, especially in warm, sandy, sheltered places, is in flower almost a month earlier than her prettier sister, Our Lady's Frock. *C. amara* is somewhat later than *C. pratensis*. This one may, in late seasons, be found in flower in June, but in the south of England May is the time when it may generally be found both in flower and in fruit. *Sisymbrium thalianum* is one of the early flowerers: it appears with *Cardamine pratensis*, not in the same place, but about the same time. The Wallflower is never later than April in gardens, and it is rarely found anywhere else; but the genuine shrubby yellow Wallflower of the old castle or ancient brick wall may be gathered in season a month later than the more showy garden one. *Hutchinsia petræa* and *Teesdalia nudicaulis* flower early; the former in March and April, the latter in April and May. *Isatis tinctoria,* a very local species, flowers in May, or even earlier (on the *débris* of chalk-pits at Guildford). By far the largest portion of the *Cruciferæ* flowers about midsummer, or some time in the month of June. The *Barbareas,* Dame's Violet, and Toothwort, Rape, *Cochlearia danica, Thlaspi arvense,* and *T. perfoliatum* are rather earlier than June, but in this month they will be found in a state fit for examination or preservation. At midsummer few indeed of the *Cruciferæ* are past flowering. *Hutchinsia,* on the bare, exposed wall at Eltham, in Kent, where it has long grown, is dried up or perhaps quite invisible at midsummer; but we believe that at Malham Tarn, in Yorkshire, some plants at least of this early species will be seen in a fresh or growing state as late as midsummer. The Watercress remains in flower long after midsummer, and the yellow-flowered species of *Nasturtium* till September, or even later. *Turritis, Arabis,* all the species except *A. stricta,* which is early, *Sisymbrium,* all except *thalianum* and *Alliaria, Erysimum, Brassica,* and *Sinapis* are in flower from midsummer to Lammas. The rarer species, *Diplotaxis tenuifolia, D. muralis,* and *Sinapis monensis,* are rather later than the former-noticed species. The Scurvy-grass, *Drabas,* with the exception of the early species already mentioned, are in flower during the whole summer, but they begin to disappear in August. The *Lepidia* flower all summer, and rarely before June. Swine's-cress, *Senebiera,* and Wild Radish will be found at the same season. In June, the first of our summer months, all the *Cruciferæ* but the very early flowerers may be collected in flower, and in July most of them in fruit also. In August it will not be too late to look for the majority of this Order; they are plentiful even in September, and in October several are still in fruit and in flower also.

The duration of the Cruciferous species varies from a few months, or perhaps weeks, to many years. The terms annual, biennial, and perennial, as they are generally applied to vegetation, are not very definite. Species usually termed annual do not always endure for a year, and they sometimes, nay often, exist during a portion of two years. Some biennials, under certain laws, live only one year, and some for three years. But on this subject we will write more in detail on some future occasion. In this Order the plants that die after producing flowers and seed—the true idea of an annual or biennial—are about three times as many as those that live for some time at least after producing seeds, or in other words, those that flower and bear seeds oftener than once are but about one-third of the number that only perform this function of life for *once* and then perish. This fact materially affects the distribution of the species, as we shall see hereafter. All the *Brassicas* and Mustards, the *Barbareas, Turritis, Arabis hirsuta, A. ciliata,* and *A. Turrita* are annual or biennial. Of the *Cardamines* three are annual, viz. *C. impatiens, C. hirsuta,* and *C. sylvatica.* All the *Sisymbriums* are annual; so are the Scurvy-grasses. Several of the *Thlaspi, Hutchinsia, Teesdalia, Lepidium campestre, L. ruderale,* and *L. sativum, Senebiera, Isatis,* and *Raphanus* are of the same duration. *Hesperis* is reputed annual or biennial, but it has been known to grow up more than once from the same root (it usually lives and flowers two seasons). We suspect the Wallflower is not a longer-lived plant than the *Hesperis* is. The Stocks only flower once from the same root in our gardens. Do they really enjoy a longer existence in their native fastnesses?

Few plants in this Order have creeping roots. Here the normal form of the root is tapering and vertical in its direction. Hence though some of them are exceedingly long-rooted, as the Hedge Mustard (*Sisymbrium officinale*), and even the Shepherd's Purse, the Tower Mustard, and many others, yet their duration is only annual. Two of the *Cardamines* (*C. pratensis* and *C. amara*) have bulbous, toothed, and somewhat creeping roots. Several *Nasturtia* have creeping roots (*N. sylvestre* and *N. amphibium*). *N. palustre, N. terrestre,* Sm., has a tapering root, and is by some botanists considered to be perennial; but probably this wants confirmation. The tapering-rooted plants of this Order, whether the root be ligneous, as in the Stock, or fleshy, as in the Turnip, etc., indicate a duration of not more than two years, or in other words, they live till they have produced seeds and no longer. To this rule *Armoracia rusticana* supplies a remarkable exception; but *exceptio probat regulam,* "there is no rule without an exception." The root of Horse-radish is vertical, but it is so full of vitality that a small bit of it, under any circumstances, will live and propagate by division at the crown. *Crambe maritima* is another plant which divides at the crown of the root, and is said to be perennial, but it is not endowed with so great self-propagating energy as the Horse-radish, possesses. *Dentaria* creeps horizontally, and where it establishes itself will retain its hold of the ground, if left unmolested. *Lepidium Draba* and *L. latifolium* have long, creeping roots, and are capable of a very prolonged existence. A few rare species of *Cruciferæ,* as *Draba rupestris, D. aizoides, Thlaspi alpestre,* etc., are accounted perennial, but their duration is probably not many seasons long. As several species of *Cruciferæ* may be found in early spring and till late in the autumn, and one of them, viz. *Capsella Bursa-pastoris,* always, so in like manner they are found in all sorts of habitats: they flower in all seasons and abound in all situations. What has been said in reference to the duration of the majority of the species will serve to point out, with rare exceptions, their place of growth. Annual plants generally grow in arable ground, or where the soil is pulverized at least once a year. Hence the *Cruciferæ* are chiefly agrarial plants, *i.e.* grow in cornfields or in gardens, or on rubbish or on manure-heaps, or by roadsides or where the ground is more or less broken; but there is no habitat where some of them are not found, from the coast-line to the elevated alpine rocks, and from the low, boggy marsh or river-bank to the dry, upland pasture. Both exposed and sheltered places produce these plants: they grow close to our dwellings, on our roofs and walls, and at the very bottom of our mountain lakes. Some are confined to the seashores,—either to the sand and gravel which abound there, or to the rocks which are continually moistened with the salt spray. These species are called *littoral* plants, from *littus,* the shore. *Cakile, Crambe,* and *Raphanus maritimus* grow on our sandy seacoasts, and Scurvy-grass on the muddy shores both of the ocean and tidal rivers. One of the British Stocks grows on the seashore; the other, *Matthiola incana,* on maritime rocks often far beyond the reach of the most adventurous collector. *Brassica oleracea* is a maritime cliff-plant, and *Sinapis monensis* and *S. Cheiranthus* grow on the shore. Several plants are said to thrive best near the sea, viz. *Senebiera didyma;* but this plant grows abundantly about Kingswood, near Bristol, which is several miles distant from the sea.

Lepidium latifolium is reported to grow near the sea, but it is also reported as being found in certain counties which have no seacoast. The *Cochlearias* (Scurvy-grasses) are found, at least most of their varieties, as *C. officinalis*, *C. danica*, etc., growing in muddy rills in our mountainous districts. Beautiful specimens of *C. officinalis* were gathered from the channel of the Ribble, in Ribbledale, above Settle, in Yorkshire. Forms from much greater altitude than the above, collected about the same time and in the same district, may have been reduced forms of *C. anglica*. This hint is thrown out that those who can may investigate the subject. The latter-mentioned plant is reported from Derby and other inland counties. Several maritime plants of other families occupy elevated or alpine situations, and their habitats are both *littoral* and *rupestral*. *Subularia* is entirely aquatic, growing under water; *Nasturtium officinale* and *N. amphibium* partake more or less of the same character. The common Watercress grows best in water, and the Yellow-cress (*N. amphibium*) grows in places where water is close by, if not in the water. *Cardamine amara* is associated with these: *C. pratensis* is a *pascual* as well as a *palustral* plant; it grows where the Cowslip is found. *Lepidium Draba*, *Armoracia rusticana*, and *Barbarea vulgaris* grow in rather moist places, but they are not confined to meadows. The sylvan and *septal* plants of this Order are *Dentaria*, in woods only; *Sisymbrium Alliaria* and *Cardamine sylvatica*, in woods and hedges, usually in the latter, because hedges are more common in England than woods are. *Cardamine amara* grows in boggy woods. A large portion of the *Cruciferæ* grows on rubbish or near homesteads, and such like localities. Shepherd's Purse is one of these which follows man, and seldom strays far from the scenes of his labours. *Coronopus Ruellii* and *C. didyma* are also *viatical* (wayside) or rubbish-loving plants; so also are *Sisymbrium officinale* and Horse-radish; *Cardamine hirsuta* is in wet places. *Nasturtium sylvestre* usually grows near water, or where water has been, about roadsides, or in rubbishy spots. *Lepidium Smithii* (*L. hirtum?*) grows on banks, where also are occasionally found *Arabis hirsuta* and *Turritis glabra*. The agrarial or field plants are the *Brassicas* and the Mustard plants, *Thlaspi arvense*, *Iberis amara*, *Lepidium campestre*, *Draba verna*, *Camelina sativa*, *Sisymbrium thalianum*, *S. Sophia*, *Erysimum cheiranthoides*, and *Raphanus Raphanistrum*. Several of these, as *Draba verna*, grow on walls, and several on rubbish as well as in fields, such as *Sisym-*

brium Sophia and *S. Irio,* the latter of which has recently almost disappeared.

The remainder of the *Cruciferæ* are either rupestral or alpine plants, as many species of *Arabis, Draba, Thlaspi,* and *Hutchinsia. Teesdalia* is a heath plant, and almost the only plant of the Order found on open, heathy parts; *Hesperis* is a garden plant, and is only partially established in some woods, and is occasionally collected as an outcast from cultivation. If the surface of these islands was reduced to its primitive state, or to the condition in which it existed before it was reclaimed by man, the number of Cruciferous plants spontaneously produced in Britain and Ireland would be considerably reduced. *Thlaspi arvense* is only found where the soil is more or less pulverized. *Lepidium campestre, Camelina sativa, Brassica, Sinapis, Raphanus, Erysimum,* and several *Sisymbriums* would disappear if cultivation were discontinued. About one-third of the Order is dependent more or less on the labours of man for their existence in this country; yet man, the cultivator at least, would be very glad to get rid of some of them: he would "rather have their room than their company." Several are very important as esculents for man and for beast, and many are in high estimation as condiments. The useful plants of the Order, though occasionally found as weeds, are not very troublesome. It is the useless portion, such as the Shepherd's Purse, the Penny-cress, and, above all, that pest in heavy land, the Charlock, that are most difficult to eradicate: these produce abundance of seeds, and their seeds are believed to be very tenacious of life, being sometimes buried in the soil for years, yet retaining their vitality and springing up when circumstances are favourable to their germination.

It has been hinted that the number of *Cruciferæ* is on the increase. *Lepidium Draba* is a recent addition to our Flora, and it is now well established in many places, and some of these, as the chalk quarries of North Kent, are not likely to be speedily disturbed. *Camelina, Koniga,* and *Alyssum* are only occasionally met with, and their reappearance is very uncertain both in time and place; *Iberis* is well established in Berkshire and Oxfordshire; *Sisymbrium polyceratium* is so also in Suffolk; *Sinapis dissecta,* Lag., is plentiful this year both in Battersea-fields and at Wandsworth Steamboat Pier. In the latter locality *Sisymbrium Columnæ, Eruca sativa, Rapistrum rugosum,* and many other *Cruciferæ* have been observed for some years,—a fact which corroborates the opinion that the plants of this Order are destined to increase in Great Britain.

The range of the British *Cruciferæ* is very extensive, for this will generally be in proportion to the alternations of temperature which they will bear; and the range of temperature which a few of the widely distributed species will bear is between twelve and sixteen degrees. Notwithstanding this, there are probably few, or any British Orders that contain so large a proportion of local plants, or of such plants as have only a very limited range. The generally distributed plants, or those which reach from the southern to the northern shores of our island, are scarcely twenty, while those that reach from the extreme south to the Murray Frith are barely ten more. The local plants, on the other hand, are nearly fifty, and many of these are very local. In the south of England the most common *Cruciferæ* (those of which we have the greatest amount of individuals) are the following:—Shepherd's Purse, Common Swine's Cress, *Draba verna, Cardamine pratensis* and *C. hirsuta, Sisymbrium officinale, S. thalianum, Nasturtium officinale, Sinapis arvensis,* and *Raphanus Raphanistrum:* these extend from the English Channel to the Pentland Frith, and to the northern shores of the latter. *Sinapis alba, Barbarea vulgaris, Sisymbrium Alliaria, S. Sophia,* and several of the *Nasturtia, Cardamine amara,* and *Arabis hirsuta,* etc., are more uncommon than the above-quoted species, and they do not extend so far north by about three degrees. Some have their north limits in Northumberland or Yorkshire, as *Hutchinsia petræa, Lepidium latifolium, Draba muralis, Turritis glabra, Nasturtium sylvestre,* etc. Several are restricted within narrower limits still, viz. *Erysimum cheiranthoides, Diplotaxis muralis, Iberis amara;* and some still more recent introductions do not extend above two or three degrees from the south, scarce reaching to the centre of England. There are a few whose range is not more than one or two degrees.

(To be continued.)

Results of a few Hours' Botanizing about North Mims, Hertfordshire and Middlesex.

To the Editor of the 'Phytologist.'

A small but zealous band of botanists, of which your humble servant formed a part, visited the above-mentioned locality in the beginning of June, 1856. One of the party collected *Hes-*

peris matronalis on the railway-bank, near Barnet station, one of our *parvenus,* according to modern botanists; yet its claims to rank among British plants are unchallenged by Ray and Hudson. Probably it is better established in the north than in the south of England. It has been collected in a copse in the parish of Laxton, near Colchester, but it is not improbable that it may have been derived from cultivation: "An escape from cultivation" is the established term. It is a favourite among the humble lovers of flowers, and consequently has got a place in the cottage-garden, and some varieties of the plant are very handsome and fragrant. It used to be, and probably still is, a fashionable flower about Southgate, Middlesex, where it appears to have been cultivated with as much zeal and pains as a Lancashireman bestows on his Polyanthuses and Pinks; and with similar success enormously large trusses of pure white flowers used to be grown, rivalling in size the finest specimens of Brompton Stocks ever produced. In Sir J. E. Smith's excellent 'English Flora' the general localities are in hilly pastures, especially near rivulets, but rare; the special are "on the banks of the rivulets about Dalehead, Cumberland, and Grassmere, Westmoreland (Mr. Nicholson), *Dillenius.* About Falmouth, *Withering;* near Cheltenham, on Cotswold-ridge, *General Hardwicke,* from which neighbourhood it was sent to Mr. Sowerby: see 'English Botany.' Near the old Castle of Airly, Angusshire, *Mr. J. Mackay and Mr. G. Don.*"

In reference to this subject, Withering, in vol. iii. and p. 587 of his famous work, says, "Specimens which I collected in Cornwall agree perfectly well with the figure of *Jacquin* and the *Flora Danica.*" The difficulty then (1796) was the question about the distinctness of the two supposed Linnæan forms (objects), *H. matronalis* and *H. inodora.* This was happily settled by Brown, to the general contentment of all British botanists. Among these the difficulty is not whether there be two species, but whether there be one British *Hesperis* at all? "Sic tempora mutantur nosque mutamur in illis." *Potentilla argentea* and *Galium cruciatum,* a rare plant in Hertfordshire, were gathered in a lane between Potter's Bar station and the woods whither we were tending. In a portion of the wood flanking an old chalk-pit *Campanula latifolia* grows very fine and plentiful; it was not of course in flower. In wet ruts in the cart-track leading to the keeper's house, which is on the summit of the ridge, we gathered *Limosella aquatica* in profusion: adjoining this track a broad-leaved variety of *Sedum Telephium,* said to be *S. purpuratum,* is also very plentiful.

By the brook, *Trifolium subterraneum* and *T. striatum* occurred; the former in abundance and luxuriant, the latter sparingly. *Alchemilla vulgaris* and *Habenaria viridis* are said to grow in this neighbourhood, but we had not time to look for them. We were however well satisfied with the results of our expedition; we spent a pleasant day in a pleasant country, and with amiable associates; the latter especially give additional charms to every pursuit.

June 15, 1856.

Rare Plants in West Surrey.

Campanula Rapunculus has its seat in a district of which the centre is about Hersham, and which extends to Weybridge, Esher, and towards Walton, but hardly beyond, though straggling specimens are now and then found in distant places. I suspect it is often mistaken for *C. patula,* and the distinction, as defined in botanical books, is so shadowy, that I never felt certain of not confounding them, until I found the real *patula,* which is rather frequent on hedge-banks in the neighbourhood of Chobham and Windlesham, but nowhere else (to my knowledge) in the county. The *Leonurus* grows about four miles from Godalming, on the road to Haslemere, in considerable quantity, but so near a cottage-garden, that if this plant were now commonly cultivated, I should not venture to pronounce it wild; I believe however it is everywhere in England an introduced plant. I sought for it vainly in a printed locality (Little London, Albury, Surrey), and found that it had disappeared. *Epilobium roseum* had vanished from near Albury Church, but in the latter situation plants cannot be expected to be permanent. Is not the *Oxalis* mentioned in the 'London Flora,' as a weed in gardens (only one), Albury-street, *O. stricta,* instead of *corniculata?* If not, they both grow there, as I found *O. stricta* there last autumn. The point is of some interest, as it would be curious that so decidedly western a plant as *O. corniculata* should naturalize itself in Surrey.

Isatis tinctoria.

A correspondent has called our attention to a statement to the effect that *Isatis tinctoria* grows on the Hog's Back, to the west of the river Wey, viz. in the Compton Chalk-pit, or rather on a cliff of the chalk there. We are requested to state that it was put there for experimental purposes, and that when these were accomplished the plant was destroyed, or believed to have been so. The attempt to eradicate it from its new locality appears to have failed, and we cannot say that we regret its failure. In reference to the station noticed in the descriptive British Botany, as printed in the 'Phytologist,' we may restate that we never noticed a plant of the Woad in the Echo Chalk-pits, opposite Chantry Downs, though these are not half a mile from its station in the Shalford-road pits. We cannot verify Mr. Brewer's locality at Albury. We once took a plant from Guildford, and cultivated it in a garden in Albury street, for descriptive purposes. We never saw one in a pit there, nor ever planted one except in the garden as above said, and for said purpose.

The range of the plant at Guildford is very limited; but it is very plentiful in that spot, one or two chalk-pits and one or two fields. The writer of this knows of its being in the same locality above thirty years; and he learned from a very aged cultivator of plants that it had existed in the same place for at least fifty years previously to 1825. It has therefore been naturalized about Guildford for about a century *certain*, how much longer we cannot guess. It is likely to remain as long again, though it is not likely to extend its range unless aided by voluntary or involuntary agencies.

Reviews.

A Monograph of the British Hieracia. By James Backhouse, Jun. York: Wm. Simpson.

When Hudson published his 'Flora Anglica,' now nearly a century ago, there were just five species of British plants belonging to this genus. This author indeed has eight species in his work, but two of them, by tacit consent, are omitted in modern enumerations, and one of them is transferred to another genus. Mr. Backhouse does not admit the claims of either *H. dubium* or *H. Auricula* to be regarded as British plants; and the other, *H. paludosum,* is of course omitted on other grounds. The genuine British *Hieracia* noticed by Hudson, deducting the three above-mentioned species, are just five, viz. *H. Pilosella, H. alpinum, H. murorum, H. sabaudum,* and *H. umbellatum.* In 1796, thirty years after the publication of the first edition of the 'Flora Anglica,' Withering, in his 'Botanical Arrangement of the British Plants,' adds four species to Hudson's enumeration, viz. *H. prenanthoides, H. sylvaticum, H. villosum,* and *H. molle.* He notices also a doubtful or hybrid species, which he calls *H. Taraxaci.* Thus before the close of the last century we had nine species. In Smith's 'Compendium Floræ Britannicæ,' published in 1818, there are fifteen species described, or eighteen including the rejected species above stated. In 1829 these were increased to nineteen in the 'English Flora.' In Mr. Babington's Manual there are twenty-one species described; we quote from the second edition.

From the above brief statement our readers will perceive that the number of species in this genus has been regularly and steadily increasing for a century. But it is not to be inferred from this abstract of the progress of increase in the *Hieracia,* that we expect it to continue. It is true that Mr. Backhouse, like a genuine disciple of nature, admits that the "*task* is not *done,*" that it is possible that some of his *species* may not stand the test of future investigation, and that some of his *forms* or *varieties* may be found entitled to rank as species. It is probable that there will be no great addition, nor any considerable diminution of the number established by the persevering and zealous author of the Monograph before us. We must refer our readers, both for the plan and execution, to the work itself, assuring them that we can honestly recommend it to their notice as a very meritorious contribution to science. Its author is too well known for his devotion to botanical explorations and successful results to need any commendation to the readers of the 'Phytologist.'

Our readers are aware that Mr. Baker, who is honourably mentioned in this Monograph, has already contributed several articles on the Teesdale *Hieracia,* and to one of them, viz. that for September, 1855, we refer those who are interested in the subject. Mr. Baker's division of the genus does not exactly coincide with that adopted by the *monographer*, but they are substantially the same. Some of the general results of Mr. Backhouse's labours we condense, and we offer the following abstract only as a sample, hoping that all who are interested in botany will procure the work and judge for themselves.

Mr. Backhouse gives us, as the result of above twelve years' study of the British *Hieracia*, thirty-three species, collected chiefly in the districts of Teesdale, Clova, and Braemar, and all of them cultivated by himself as much as possible under the same conditions. This is a large increase, and some may hesitate before adopting Mr. Backhouse's views. To these it may be said, read and judge for yourselves. Our author has not adopted the *procrustean* mode of extending or curtailing the characters of species, in order to adapt them to fit into some other systematic descriptions, Fries's for example. He acknowledges, as any botanist may, his obligations to the learned author of the 'Symbolæ ad Historiam Hieraciorum,' but emphatically asserts that all his attempts to refer the plants he collected to species already described as British, were ineffectual. Our author's opinions on this difficult genus of plants will be received with some deference when it is considered that he has studied them in their native localities; has observed them growing under the very variable conditions of diversity of soil, exposure, horizontal and vertical range; and, in addition to all this, he has cultivated them in his own garden, and noted their growth and development under artificial and similar conditions.

The horizontal distribution of the *Hieracia* extends from the south of England to the north of Scotland, though they are more abundant in the west than in the east, owing probably both to elevation and atmosphere. Their vertical range is very great, viz. from the coast-line or seaboard to nearly the summits of our highest mountains; or they have a range of 4000 feet. Nine of the most common and widely distributed of the species grow at an elevation varying from the coast-line to above 5000 feet in altitude. Four of these, viz. *H. Pilosella*, *H. murorum*, *H. vulgatum*, and *H. cæsium*, extend into the lower alpine region, which is from 1500 to 2500 feet of elevation. These, the most common species, have the greatest range, both horizontal and vertical. In the subalpine region, viz. 500 to 1500 feet of elevation, the number of species found is twenty; sixteen inhabit the lower alpine region, though not exclusively, as we have seen; and six appear to be confined to the upper alpine region. The *Pulmonarea* group is the most numerous in species, and has the greatest vertical range: four of them inhabit the lower region, etc., ten the subalpine, etc., fifteen the lower alpine, etc., and six the upper alpine region exclusively. [We are not able to make the Summary and the Table agree; for example, nine species inhabit the lowland region, etc., and we find only eight named in the table. Is *H. cerinthoides* to be added because found on the Links of Aberdeen?]

Eight of these species have not hitherto been described by Continental botanists; or if any of them have been so described, their description has been drawn up from British specimens. Hence it may be inferred that a portion at least of these species is solely British. Their distribution, in relation to soil or locality, is as follows:—Teesdale, on the basalt and mountain limestone, produces 13 species; Clova, on mica-slate and micaceous quartz, etc., produces 23 species; and Braemar, on granite, mica, etc., about as many species as Clova.

From a comparison of the number of English examples of *Hieracium,*—the produce of Teesdale, 13 species, is a sample,—and the numbers found in Scotland, viz. in Clova and Braemar, 23 species respectively, it may be inferred that the maximum number of species belong rather to the Scottish than to the English type of distribution. Probably Norway is the headquarters of the genus. Will some kind correspondent of the 'Phytologist' undertake to do for the *Hieracia* of the south of England, and especially for the Kent, Surrey, Sussex, and Hants species, what Mr. Baker has so ably done and is doing for the Teesdale species of this genus?

The Natural History Review, published quarterly. Nos. IX. and X., January and April, 1856.

This publication, judging from the two numbers sent to us, is rather a review of Zoological works, and a history of the progress of this science, than a review of publications on Natural History.

The contents of No. IX. are—Reviews, twenty pages. The works noticed are Burmeister's 'Investigations on the Classification of the *Coleoptera;*' the Rev. C. Kingsley's 'Glaucus, or the Wonders of the Shore;' 'The Natural History of the *Tineina,*' vol. i.; 'The Entomologist's Annual;' 'Geology, its Facts and Fictions,' by W. Elfe Taylor; Dr. Lindsay's Papers on the Dyeing Properties of Lichens; Mr. Sowerby's 'Fern Allies;' and Baker's 'Classification of the Plants of Great Britain according to their Geognostic Relations.' The original communications, or Proceedings of Societies, are exclusively zoological, and they occupy twenty pages. The notices of serials occupy thirty-two pages. These serials are almost exclusively devoted to Zoology or to Geology or to Chemistry. The only botanical works we have noticed are the 'Linnæa' and Hooker's 'Journal of Botany and Kew Garden Miscellany.' This number concludes with thirty-two pages of the Journal of the Geological Society of Dublin, and contains a paper, by John Kelly, Esq., on the Localities of Fossils of the Carboniferous Limestone of Ireland.

No. X. contains twelve reviews, nine original communications, and sixteen pages filled with notices of serials, the conclusion of Mr. Kelly's Paper on the Fossils of the Carboniferous Limestone, and an Address to the Geological Society of Dublin, or a panegyric on geology and geologists in general.

We have now laid before our readers the contents of a work which deserves the patronage of all the disinterested disciples of Nature. The greater portion of the contents are, as may be seen by a glance at the work, beyond our sphere, and to our zoological, geological, and chemico-physical contemporaries we must leave them. But, independently of this, we can discern in the editors or writers of these very interesting articles a liberality and geniality of spirit which more or less characterizes every genuine lover of natural studies. We are particularly obliged to them for the following sentence, No. IX. p. 7:—"The professors (of natural science) are too apt to leave the *popularizing* of their studies to other and less competent hands." This we have often regretted; and we have sometimes ventured to remonstrate against the practice of scientific writings being composed rather for the scientific than for the million, who are not seldom deterred from the reading and study of such books by the unnecessary technicalities abundant in them. The strong forget the

Divine injunction to "bear with the infirmities of the weak." But we have no space for *moralizations.* We would recommend the author of 'Glaucus' (who seems to believe that all Natural History is exhausted except "the wonders of the shore") to put himself under our guidance for half a day, and we would show him some marvellous things on the shores of "Father Thames." But if he would spare a month," when summer days are fine," we would take him to the wilds of North Wales, or to the highlands of "bonny Scotland;" and if we did not convince him that there were things in Nature worth seeing more satisfactory than the stupid amusements of a fashionable watering-place, we will engage to pay all the expenses of the Welsh or Scottish tour.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Carpinus (Hornbeam or Yoke-tree), *Derivation of.*—The Latin *carpo* (I collect fruit or herbs, I carve or cut up) is the root of our word *carpenter*, which we derive from the French *charpentier*. It is the only form we have from this source; but the French have several. In the northern part of this island the Anglo-Saxon term *wright* is commonly used for *carpenter*. Thus the word *wright* is used for roofers (builders), agricultural implement-makers, and cabinet-makers indifferently. This may be called the generic term, the others are specific. The Celtic *car* (wood) is from the same origin, and so is probably the Greek καρπος (fruit). The term *Carpinus* may have been applied to this wood because it was employed by carvers or turners, or because it was employed for yokes, and so placed on the necks of oxen; and hence, its second syllable is from the Celtic *pen* (head). The Anglo-Saxon names of Hornbeam and Yoke-tree are equally expressive of its use, a beam or yoke fixed on the horns of oxen, or rather on the necks of oxen; or it may have received its name *hornbeam* from its nature, its wood being very hard. ETYMOLOGUS.

Mespilus—Medlar, Derivation of.—The scientific term is Greek, derived from μεσος, the middle, and πιλος, a ball, in allusion to the form of the fruit, which is truncated (a truncated sphere). The following derivation is offered:—*Pilus*, Lat., signifies hair and wool, hence *pileum*, a cap made of hair or wool, and hence *felt*, that which is formed of hair or wool, felted, not woven. Of this material hats and caps are made now, and the latter were anciently made. The German term for this tree is the same as the Greek, viz. *Mispelbaum*, with *Baum*, tree, added. The Anglo-Saxon *Medlar* is supposed to be from the same, viz. *maed* or *med*, a Medlar. Dr. Bosworth derives it from the Hebrew *matan*, a gift, from *natan*, to give, from *mat*, meat, the oldest presents consisting in victuals; hence *meed*, reward. The English prefix *mid*, the German *mit*, the Latin word *medius*, and the Greek μεσος, are all synonymous, as they are evidently from the same original. LEXIPHANES.

Epipactis, Derivation of.—This, in Greek writers, is a synonym of *Elleborine;* and it is uncertain to what species or genus of plants it was anciently applied. It is a compound word; επι in composition is used to express relations of time and place, as succession, contiguity, etc; πακτις, Doric for πηκτις, is from πηγνυμι, which, among other senses, has the meaning of a pointed elevation, to grow erect and tapering into a point, the habit which these plants usually assume.

English Names of Plants.—Heart's-ease (p. 143).—It is probable that this plant was formerly employed in the preparation of a cordial. It was a sort of specific used in many cases. Ipecacuanha, a well-known powerful deobstruent, is derived from a plant of this Order. The removal of pains might give ease to the heart, hence the name. Again, the plant anciently bore the name *Herba Trinitatis,* "herb of the Trinity," in allusion to its three colours, from which we derive its trivial name *tricolor.* It is termed *Heart's-ease* by Gerarde, Parkinson, and consequently by our older herbalists. J. A.

Chelsea.

J. B., *St. Alban's* (p. 143), is informed that Heart's-ease is not a modern name of the Pansy. It occurs in Bunyan's celebrated Vision, where he represents the guide speaking of a boy singing by his sheep, or singing to them: "Do you hear him?" said he; "I will dare to say that this boy leads a merrier life, and wears more of the Heart's-ease in his bosom, than he that is clothed in silk and purple." Gerarde employs this name, and he lived nearly a century before Bunyan. The same ancient writer on plants and their history calls the same plant "Live in Idleness." Shakspere, in the 'Midsummer Night's Dream,' calls it "Love in Idleness." He says, "And maidens call it Love in Idleness." Is this a corruption, or another name for the plant? Gerarde gives us in addition the following names of the Pansy: "Cull me to you;" "Three Faces in a Hood;" Herb Trinity (*Herba Trinitatis*). Mrs. Loudon, in her work on British Wild Flowers, gives other common names, and to this lady's work we refer those who are curious in such matters.

Furze.—Linnæus lamented that he could not preserve this plant alive in a greenhouse; and Dillenius, when he first visited England, knelt down in admiration of the quantities he saw in flower on Hounslow Heath. About 1825 the double-flowered variety was found wild in Devonshire, and has since been extensively cultivated as an ornamental evergreen flowering-shrub.

Ivy.—Cato and Pliny ascribe a singular property to the wood of the Ivy, viz. that it may be used as a filter, and that it can separate wine from water. These authors say that if a cup of Ivy-wood be filled with wine that has been adulterated with water, the wine will find its way through the pores of the wood, and the water alone remain in the cup. It is stated that this experiment was tried by a trustworthy person, and the reverse took place—the water filtered through and the wine remained.

CURIOSUS.

Birch (*Betula alba*).—This tree, or rather its leafy, slender branches, were used, Gerarde says, "to the decking-up of houses and banqueting roomes for places of pleasure, and beautifying the streetes in the crosse, or gang week, and such like." Coles, who wrote nearly a century after Gerarde, observes, that at this season (Whitsuntide), as he "rid through little Brick-hill, in Buckinghamshire, every signe-poste in the towne was bedecked with green birch." Evelyn says Birch cudgels were used by the lictors, as now the gentler rods by our tyrannical pedagogues, for lighter faults.

Yardley Oak.—

"Oh couldest thou speak,
As in Dodona once thy kindred trees,
Oracular, I would not curious ask
The future, best unknown; but, at thy mouth,
Inquisitive, the less ambiguous past!
By thee I might correct, erroneous oft,
The clock of history."—*Cowper's Task.*

Can any reader inform us if this famous Oak is still in being?

Viola.—Sir,—Will any of your learned correspondents tell "Alpha" the derivation or origin of this appellation?

Wash for Sheep.—Arseniate of potash blended with vegetable infusions, such as those of Foxglove, Stavesacre, Henbane, Dock-roots, etc.

Naked Oat.—Is *Avena nuda* of Ray and Hudson, or *Pillis* or *Pill-corn*, known in Devonshire or anywhere else? Ray says, "Aiunt et in Devonia eam seri; verum nos ibi non vidimus." It might however have been there and yet not noticed by this great naturalist. Any information about this Naked Oat will be acceptable to AGRICOLA.

Verbena.—It has been said that the *Vervain* is never seen growing at a distance of above half a mile from a house. Can any of our observant readers confirm this?

Thrinax argentea.—We beg to inform H. H. of St. Alban's that the aforesaid is the name of a *leaf* employed in the manufacture of hats and bonnets in that neighbourhood, where large quantities of the prepared material may be seen on strings in the cottage gardens. This is a genus of *Fan-Palms*: the name is derived from θριναξ, a fan, the form assumed by the developed leaf. Brown, in his 'Natural History of Jamaica,' says, "The footstalks of the leaves, split and pared, serve to make baskets, bowstrings, ropes, etc., where strength and toughness are required; the leaves are used for thatch, especially for outhouses, and they stand the weather many years."

Botanical Proverb.—"Velocius quam coquuntur asparagi:" Sooner than you could cook Asparagus.—Δις κραμβη θανατος.

Ramsons, Ramsies, and Buckrams.—"The leaves of Ramsons be stamped and eaten of divers in the Low Countries with fish for a sauce, even as we do green sauce made with Sorel."

Dr. Windsor favours us with the following note on his List of Settle Plants:—*Ononis arvensis*, pasture opposite a little old limekiln (one habitat); *Vicia sylvatica* also is only one habitat, etc., near Kirkby-Malham.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Notes and Observations on a Botanical Tour in the Highlands *of* Perthshire, *in July,* 1856. *By* W. P. *and* A. I.

We left King's Cross Terminus, London, on the last day of June, 1856, at half-past eight o'clock in the evening, by the Great Northern Railway, and arrived at Edinburgh by eleven o'clock next morning. The day began to dawn before we reached York, and when near Darlington we had a view of Penyghent, near Settle, the scene of former botanical explorations. About Edinburgh the vegetation appeared to us remarkably scanty. We hope our readers will not accuse us of drawing general conclusions from partial premises. Our visit to Edina was a short one, but we made good use both of our time and eyes. We strolled to the west by Bruntfield Links, the West Park, etc., and saw luxuriant grass grazed by the cows which supply the inhabitants with milk, and in which localities the portly and fair *blanchisseuses* both wash and bleach the linen of the citizens, but of interesting plants we saw no trace. The shore by Portobello was visited with similar success. The only plant of interest we noticed was *Geranium pyrenaicum.* Large-flowered specimens of *Geum urbanum* abounded, and we speculated about the probability of their being *G. intermedium.* But if these Scottish specimens be this presumed species, where is *G. urbanum* to be found in Scotland? All the examples observed appeared to belong to one common type; and if so, either *G. urbanum* or *G. intermedium* is absent in those parts of Scotland which we traversed, or perhaps, with a modest conviction of our own somewhat lax observations, it should be said that we did not see well-marked examples of the two supposed species. Our account of the botany of the King's Park, inclusive of Arthur's Seat, St. Leonard's Crags, must be of the same negative character. As the park is distinguished by the singular absence of trees, so the rocks appeared to be as bare of vegetation. Several plants of *Dianthus deltoides* were collected, but all were of the common or usual form; the var. *D. glauca* was not visible. We cannot say that we were unsuccessful in our *hunt* after *Asplenium septentrionale,* for we did not look for it, prudently judging that we should lose our time and get wet feet "to the bargain." (We visited the park twice, and the second time was early in the morning, when the dew lay thick on the grass.)

Plenty of *Geranium pyrenaicum* was observed in a very elevated part of St. Leonard's or Salisbury Crags, the part next to the palace (we are not quite clear about the nomenclature of these far-famed localities). On going up to the summit of Arthur's Seat we collected a few stunted and deformed examples of *Astragalus hypoglottis*. I believe this is the entire result of our botanizing in the King's Park; yet this locality, though rugged enough to please a hunter for the picturesque, is far from being a barren tract. The turf is close, and the herbage is as green "as grass can be," and the colour is a sufficient proof of the succulency of the pasturage. Yet the whole has, to eyes accustomed to the luxuriancy of the sweet south, a desolate, bare, and unpleasing aspect. That trees would grow here is very evident; for just outside the park wall, where the locality is more exposed to the unfriendly effects of the sea-breezes, there is a belt of thriving trees. A few trees scattered here and there would improve the landscape. They would break the long rigid lines of frowning, beetling rocks, and hide the somewhat dreary aspect of the bare hills. The greatest of Scotia's poets petitioned for trees to clothe the naked wildness of Bruar Falls. He gave utterance to what Bruar water might have said through its *water sprite*, if gifted with a sense of the beautiful and endued with the gift of song. Would that he, the poet, had petitioned in behalf of Arthur's Seat, which is seen by hundreds of thousands who never heard of Bruar and its grand Falls!

We next visited Roslin Castle and Chapel, together with Hawthornden, places eminent in the early history and classical reminiscences of this ancient kingdom. The very names of these places will cause life's current to swell in the hearts of all lovers of Scottish melody, song, and poetry. But our business is with the botany; and the antiquities and the poetical associations therewith connected must be left untold, as here they would be as much out of place as trees are *out* of the King's Park at Edinburgh. If we were disappointed in realizing our botanical expectations about Auld Reekie, the woods of Roslin and groves of Hawthornden made ample amends for the meagre results of the earlier part of the day. The Roslin railway-station is within less than half a mile of the woods, and not a mile from the Chapel, which is one of the celebrities of Scotland's metropolis. We reached the ground about twelve o'clock, and had six or seven hours to spend in botanizing.

The plants of the greatest interest to us *Southrons* were *Geranium sylvaticum,* unknown in the extreme south of England. Even in the Craven district, where we had previously seen it in abundance, it did not reach the luxuriance and beauty which it attains in the Scottish woods. The size of the flowers, their ever-varying shades of brilliant colours, from bluish-purple to red, exceeded the finest cultivated or wild examples which we had seen. This fine plant adorned our path through all Perthshire, till we had reached the culminating point of our tour; then it gradually gave place to its usually more lovely relative, *G. pratense.* May the readers of this and the succeeding papers on this subject have only as much pleasure in accompanying us, as we had enjoyment of the lovely Wood Geranium, which we met for the first time this season in the woods of Roslin! The Ferns here were magnificent in size, beautiful in form, and of the most lovely colours; but as no rarities in this Order were noticed, we pass them over. *Equisetum sylvaticum,* one of the handsomest of the genus, was observed in profusion. *Luzulas* were also in abundance and very luxuriant. On the old castle, a very fine ruin,—if a ruin can be fine,—situated in a charming spot, and a place of considerable strength in the olden times, several mural plants were collected as mementos of a day's botanizing, such as rarely occurs. Among these may be noticed *Hieracium murorum,* in full flower at this early period, *Cheiranthus Cheiri,* and *Scolopendrium vulgare,* a Fern which is by no means general in Scotland.

After paying our respects to Roslin Chapel, a marvel of artistic beauty, and of almost infinite variety in detail, "*sed his non est locus,*" we wandered into the classic shades of Hawthornden, and luxuriated among Ashes, Yews, Hollies, and other trees, many of them probably planted by the poet whose name and sonnets have conferred a world-wide renown on this place, so richly gifted by the hand of nature. The first plant we noticed was *Anchusa sempervirens;* but the locality is not unquestionable. This plant however has the power of self-propagation for many years, we had almost said generations. The localities noticed by Ray did, and probably do still, produce the plant. It had all the appearance of being coeval with the wood where it was growing, and the wood may be coeval with Fergus, the first King of Scotland, who was a contemporary of the mythic heroes of

Greece. *Stellaria nemorum, Campanula latifolia, Vinca minor, Myosotis sylvatica,* with its large and handsome flowers, *Polygonum Bistorta,* with *Equisetum Telmateia* and the elegant *E. sylvaticum,* rewarded our further search in these densely shady woods. By the roadside, near to Roslin Inn, several fine plants of *Myrrhis odorata* were observed, partly growing on the bank and partly in the cornfield. This plant is a common occupant of Scottish gardens of the humbler classes, and hence probably the botanical demur to its taking rank as a genuine native of our British soil. To this however it is unquestionably entitled: not on the authority of a few scattered plants in Scotland, in no part of which, so far as known to us, would we venture to pronounce it wild, as wild is usually understood in these our critical days; but on the authority of thousands of plants which fringe with their elegant foliage, or large umbels of erect fruit, the borders of the mountain streams in the West Riding of Yorkshire. In the adjoining cornfield, *Lithospermum arvense, Stachys arvensis, Viola arvensis,* var. (?), *Papaver Argemone,* and two at least of the annual Fumarias, with several other more common cornfield plants, were growing very plentifully. As a *finale* to our first day's botanizing in Scotland, and a very agreeable and successful one it was in all respects, the station-master showed us some of his botanical rarities, which were no rarities to us. We exhibited some of our *captures* from Hawthornden woods, but found that he knew less about them than we did previously to our leaving London. Our knowledge of the vegetation of Mid Lothian was far ahead of his, though we had botanized there only a single day and he had lived there all his days. There is this to be said in his behalf, that his days have been but few and ours have been many. And we are too often met by the conceited *cui bono* race of men, who sneer at our humble and amiable pursuits, not to feel gratified when a young man in the responsible situation of a station-master does not disdain to look into the collecting-box of an amateur. The arrival of the train which was to convey us back to the city, interrupted our agreeable *tête-à-tête,* and hindered our seeing the herbarium as well as getting a sly peep into the knowledge-box of our recently acquired and obliging friend. Between Edinburgh and Stirling there is a steam-boat which plies between these two places, twice a day in summer. By this means of transit the passenger enjoys the beautiful views alongshore on both sides of the Forth, from its mouth, where it is many miles wide, to the point where its banks are united by a bridge, not larger than the bridge of Kingston. Our object is not pictorial nor antiquarian, or the luxuriant woods which fringe both sides of the estuary would be noticed, with the grand mansions, seats, and residences of Scotland's titled and untitled aristocracy, which peep out every now and then from the bosoms of the dense masses of trees, beautiful as a leafy and moist June can make and keep them. Several unostentatious little towns dot the shores of the Frith. These are the hives of busy industry; and the most notable are the North and South Queensferry, Charleston, Culross, Borrowstowness (pronounced Bo'ness), Kincardine, Alloa, celebrated all over Scotland for its ales, and Carron, still more celebrated all over the world for its grates, hot-air stoves, and many things of a less harmless nature than cooking utensils. Blackness Castle, on the southern shore, is one of the few fortresses which Scotland jealously stipulated, at the Union, were to be preserved as garrisoned places. Cambus Kenneth Abbey, or rather a part of it, still stands as a monument of the religious grandeur of Scotland, now no more. Scotland has but few remnants of ecclesiastical edifices to show; but to make up for these she has castles, fortalices, towers, and spences innumerable, and of all sorts and sizes, from the princely edifices of Taymouth, Dunrobin, etc., down to the less extensive but not less characteristic baronial erections of Castle Fyvie, Castle Fraser, and the Castle of Cluny. The genuine Scottish castles do not exist on the shores of the Forth, nor on those of the Tay either. Strathdon, the Straths of Dee, Ury, Ythan, Ugie, etc., in the Garioch and Buchan districts of the north and east of Scotland, contain the most renowned castles of the Middle Ages; but modern refinements and the necessities of a more civilized age have, even in these, made innovations that impair their ancient characters.

But as we did not go to Scotland to look for a castle, as our great lexicographer went to look for a tree, we did not pay our respects to many of the baronial residences that lay in our way. To make amends for this the grand features of Scotland, her hills and streams, came in for a full share of our notice and admiration. The first grand object, in sailing up the Forth, that attracts the notice of the lover of nature, is the Ochil Hills on the north side of the Forth, and the Fintry hills on the southern side: these hills do not form the basin of the Frith. The Ochils meet the Forth at or near Stirling, but are far distant from the river at its lower portion. The Fintry hills form a continuation of that great chain of hills of which Ben Lomond is the *facilè princeps,* and which towers above them as the Lombardy Poplar springs up among, and far above, the humbler Birches and Alders. The windings of this river have ever been famed since Wordsworth wrote and published that exquisite morsel of pretty poetry, 'To Yarrow Unvisited.' Who that has read this charming production does not long to feel somewhat of the poet's raptures who sang so sweetly one of Scotland's most renowned classic streams?

> "From Stirling Castle we had seen
> The mazy Forth unravelled;
> Had trod the banks of Clyde and Tay,
> And down the Tweed had travelled."

The views from the ramparts of Stirling Castle are very extensive and imposing: to the east there is a remarkable crag, which looks for all the world as if it had been shorn through the centre, and one-half carried away no one knows whither: though

> "The words that cleft the Eildon hills in three,
> And bridled the Tweed with a curb of stone,"

could have had no more difficulty in carrying away the hills than they had in separating them. It is proposed to erect on the remaining half of the abbey-crag a memorial to one of Scotland's greatest patriots and the valiantest and stoutest of her sons. The blood flows rapidly in every true Scotsman's veins whenever he hears the soul-stirring and simple melody of "Scots wha hae wi' Wallace bled." The nobility, gentry, and commons of Scotland have erected several monuments to him who has as high a place among the poets as the subject of the song quoted above has among her warriors: both occupy the foremost places. The reproach of Scotland's having no monument to commemorate her greatest warrior is now to be removed. Better late than never; but the warrior's and patriot's noblest monument is the memories and feelings, the minds and hearts, of his countrymen, wherein he is, and ever will be, enshrined. From the west-side ramparts of the castle there is a good prospect of Ben Lomond, and, a little nearer and to the right appear Benvenue and Ben An, the two sentinels which guard the Trosachs, the pass to Loch Katrine. Still further on the right is Ben Ledi, the highest portion of the mountain barrier that divides the highlands from the level plains of Menteith, Stratherne, and the other upper parts of the Perthshire lowlands. Ben Voirlich and Ben Cruachan, the former near Loch Erne and the latter near Loch Awe in Argyleshire, are also visible from Stirling Castle.

Stirling is an interesting ancient town. The important events connected with it are neither few nor unimportant. The great battle of Stirling, in which Wallace baffled the most heroic and sagacious of England's kings, was fought in a field which is within half a mile of Stirling bridge; and the great battle of Bannockburn, the result of which was the independence of Scotland, was fought a few miles from the town on the south; Sauchieburn, a stain upon Scotland's memory, was also fought within a mile or two of the town, in a valley upon the west.

The ecclesiastical and some other buildings of Stirling are interesting memorials of bygone times. The situation of the town is commanding, scarcely yielding to that of Edinburgh itself. The botanical objects of interest about Stirling are not very numerous, but they are not quite absent. In the churchyard of the High Church (which, like several other large sacred edifices in Scotland, accommodates two congregations) there is abundance of *Myrrhis odorata*. This plant is as plentiful here as the goutweed, *Ægopodium Podagraria*, is about most towns and villages in Scotland: this latter is the commonest of Scotland's umbelliferous urban or wayside plants, as *Bunium flexuosum* is the common umbellifer of the fields and woods. On the ramparts of the castle a solitary example of *Vicia lathyroides* was gathered; *Tanacetum vulgare, Echium vulgare, Rumex pulcher,* near the old bridge,—this Dock is by no means general in Scotland, so far as our observation extends.—A few other suburban plants were noticed.

After a very agreeable stroll of three hours' duration about the King's Park, the banks of the Forth, the bridges and environs of Stirling, we went by rail to Dunblane, famous for being once the See of the pious and liberal Bishop Leighton, whose memory has entirely perished in the scene of his ministerial labours. An interesting chapter might be written about Dunblane and its ecclesiastical divisions; but our business *here* is with the unities and beauties of Nature, and therefore we forbear to enlarge upon the disagreeable themes of civil and religious strife, of which this little city has been the passive witness for centuries.

As we commenced, strictly speaking, our botanical tour at Dunblane,—for here we used the conveyance wherewith Nature bountifully provided us,—our readers may look for a more detailed account of our onward progress.

(To be continued.)

Note on Aconitum Napellus.

To the Editor of the 'Phytologist.'

Perhaps it may not be "unseasonable" if I venture to express a strong conviction that the idea thrown out at page 364 of the June number of the 'Phytologist' respecting the innocuous nature of *Aconitum Napellus* in some countries, or under certain circumstances, is altogether erroneous. The subject is an important one, and ought not to be lightly passed over. The name of Linnæus being introduced in connection with the subject, induces me in the first place to ask, whether there is any certain evidence of *Aconitum Napellus* occurring in Lapland. Linnæus might doubtless say (in the passage referred to), "I noticed a woman in early spring gathering the leaves of *this* Aconite;" and might record the fact of her "dining on Wolfsbane broth" in his presence. But the question immediately presents itself, was "*this* Aconite" *Aconitum Napellus* at all?

Linnæus, in his 'Species Plantarum,' ed. 2, only mentions three countries in which *A. Napellus* occurs, viz. "Helvetia, Bavaria, Gallia." No mention is there made of the existence of *A. Napellus* as a native of any part of Scandinavia. Knowing the notoriously poisonous character of *Aconitum Napellus,* Linnæus might well be astonished at *any* Aconite being used as an article of diet, and especially one so closely allied to that species in appearance, when not in flower, as to be liable at first sight to be mistaken for it.

During the summer of 1851, in company with my father, I visited Norway. On commencing a journey into the interior, we noticed a species of Aconitum abounding in the more open parts of the Spruce Fir Forest. Our first impression was, naturally enough, that it was *A. Napellus*, which neither of us had seen in a wild state. Careful examination however soon undeceived us as to its being that species, but we were (like Linnæus?) not a little astonished to find, on pursuing our journey into the interior, that the plant was carefully reaped and dried by the peasantry, and used as fodder for cattle!

The discovery induced us to make further inquiry, and we found that the *stem*, *leaves*, and *flowers* of the plant were "harmless," though some suspicion remained regarding the *root*. We learned moreover that occasionally, though very rarely, cattle came in contact with the true *Aconitum Napellus* (which may possibly be a rare native, or much more probably have been introduced into gardens there, as in this land, on account of its beauty). The result was, without any exception, "death!" Now Linnæus mentions *A. Lycoctonum* being a native of the Alps of Lapland and also of Italy—"Habitat in Alpibus Lapponiæ, Helvetiæ, Austriæ, Italiæ;" thence it is not unreasonable to suppose that "*this Aconite*," referred to by Linnæus, was one of the plants which he included under the name of *A. Lycoctonum*, but which is distinguished by modern botanists as *Aconitum septentrionale*, a species distinct from the former, though closely allied to it.

The former plant may also have given rise to the tradition on which the remark in the 'Phytologist' at page 365 is based, "It is scarcely credible that it is innocuous in Italy," etc. It is quite credible that *an* Aconite was used; but I cannot for a moment believe that a plant so extremely poisonous in every portion of its structure as *A. Napellus* will ever favour any country or soil by casting aside its poisonous principle.

On consulting the article in the 'Lancet' by Dr. Headland, already referred to, I find it stated that *A. Lycoctonum* is stated to be poisonous in Switzerland. This however, if it refer to the leaves and stem, may require further investigation; though from the fact that the poisonous alkaloid "aconitina" exists even in those species which contain the largest portion of it, such as *A. Napellus* and *A. ferox*, in varying degree in different stages of their growth, it is by no means improbable that in a species like *A. Lycoctonum*, in which the poisonous principle exists to a very small extent, and usually only in the root, there may be conditions of it in which it may extend in some measure to the leaves and stem also. Still such a fact must be received cautiously, and only upon clear evidence.

Notes taken during a Visit to Norway in 1851.

7 Mo. 11. Vicinity of Christiania.—An *Aconitum, A. septentrionale,* abounds by the sides of the road.

7 Mo. 18. Near Nystuen, Fille-Fjeld.—*Aconitum septentrionale* is abundant even high up among the rocks. It may be considered as one of the most striking plants of Norway, as it meets the eye in all directions and in all kinds of places, exhibiting its large leaves and livid blue Monk's-hood flowers.

7 Mo. 24. Maristuen.—*Mulgedium alpinum* is very abundant; it is often mixed with the great *Aconitum septentrionale,* which ranges, wherever there is a little shade, throughout this part of the country.

7 Mo. 29. About Borgund we noticed quantities of Monk's-hood (*Aconitum septentrionale*) cut and laid on the bushes to dry; this, we learned, was for winter-fodder for cows!

Jas. Backhouse, Jun.

York, 6th Mo. 16, 1856.

Common Plants. By the Rev. Hugh A. Stowell.

[We beg to preface the following remarks on this subject in the words of our Reverend Correspondent.]

I had gone very carefully over your List of Common Plants, and made my notes and reflections thereupon, before receiving the July number of the 'Phytologist.' Therein I find myself somewhat forestalled; nevertheless I enclose the result of my cogitations. You certainly cannot be said to have erred on the illiberal side; for though I would strike many off your list, I do not think I could add half-a-dozen from the whole British Flora to it. My claim to challenge (such as it is) rests upon an intimate acquaintance with the plants of Lancashire and Cheshire, the neighbourhood of Oxford, and this, Eastern Kent, and a more cursory survey of North Wales, West Yorkshire, the Western Highlands, the Lake district, and a few detached spots, jotted here and there over the country. I have trusted more therefore to my eyes than to books.

No fewer than 86 of the "common" species are wanting in the neighbourhood of Faversham, viz.:—

Drosera rotundifolia.
Sagina nodosa.
Spergularia rubra.
Radiola Millegrana.
Hypericum dubium.
Genista anglica.
Comarum palustre.
Myriophyl. alterniflorum.
Peplis Portula.
Montia fontana.
Saxifraga granulata.
Chrysospl. oppositifolium.
Helosciadium inundatum.
Ægopodium Podagraria.
Anthriscus vulgaris.
Hieracium cæsium.
„ boreale.
Arctium Bardana.
Bidens cernua.
Tanacetum vulgare.
Achillea Ptarmica.
Jasione montana.
Erica Tetralix.
„ cinerea.
Veronica scutellata.
„ polita.
Pedicularis palustris.
Thymus Chamædrys.
Lamium incisum.
Scutellaria galericulata.
Myosotis palustris.
Pinguicula vulgaris.
Utricularia vulgaris.
„ minor.
Lysimachia nemorum.
Anagallis tenella.
Littorella lacustris.
Atriplex hastata.
Polygonum amphibium.
Rumex sanguineus.
Populus tremula.
Salix alba.
„ aurita.
„ fusca.
Myrica Gale.
Habenaria chlorantha.
Potamogeton lucens.
„ pectinatus.
„ perfoliatus.
„ pusillus.
„ rufescens.
Juncus supinus.
„ squarrosus.
Luzula multiflora.
Narthecium ossifragum.
Scirpus setaceus.
„ sylvaticus.
„ palustris.
Scirpus pauciflorus.
Eriophorum vaginatum.
„ latifolium.
Carex pulicaris.
„ remota.
„ flava.
„ Œderi.
„ pallescens.
„ fulva.
„ pilulifera.
„ ampullacea.
„ vesicaria.
Agrostis canina.
Triodia decumbens.
Molinia cærulea.
Glyceria plicata.
„ hybrida.
Festuca loliacea ?
Bromus giganteus.
„ secalinus.
„ commutatus.
Nardus stricta.
Aspidium lobatum.
Lastrea Oreopteris.
„ dilatata.
Athyrium Filix-fœmina.
Lycopodium Selago.
„ clavatum.

"Common" species, not occurring in the Channel Islands (83):—

Anemone nemorosa.
Caltha palustris.
Helianthemum vulgare.
Silene inflata.
Hypericum dubium.
„ hirsutum.
Trifolium medium.
Orobus tuberosus.
Agrimonia Eupatoria.
Rubus Idæus.
Pyrus Aucuparia.
Myriophyllum spicatum.
Saxifraga granulata.
Sanicula europæa.
Hieracium murorum.
„ cæsium.
„ vulgatum.
„ boreale ?
Arctium Lappa.
Bidens cernua.
Petasites vulgaris.
Achillea Ptarmica.
Campanula rotundifolia.
Vaccinium Myrtillus.
Gentiana Amarella.
Melampyrum pratense.
Galeopsis Ladanum.
Pinguicula vulgaris.
Utricularia minor.
Lysimachia nemorum.
Atriplex hastata.
Populus nigra.
Salix purpurea.
„ viminalis.
„ cinerea.
„ aurita.
Myrica Gale.
Juniperus communis.
Taxus baccata.

Orchis Morio.
Gymnadenia conopsea.
Habenaria bifolia.
,, chlorantha.
Allium ursinum.
Potamogeton pusillus.
,, perfoliatus.
,, rufescens.
,, lucens.
Sparganium simplex.
Juncus supinus.
,, squarrosus.
Luzula pilosa.
Narthecium ossifragum.
Scirpus sylvaticus.
Scirpus palustris.
,, cæspitosus.
Eriophorum vaginatum.
Carex curta.
,, acuta.
,, fulva.
,, binervis.
,, sylvatica.
,, ampullacea.
,, vesicaria.
,, paludosa.
Milium effusum.
Agrostis canina.
Aira cæspitosa.
Avena pratensis.
Avena pubescens.
Melica uniflora.
Glyceria plicata.
,, hybrida.
Bromus giganteus.
,, asper.
,, secalinus.
Triticum caninum.
Hordeum pratense.
Aspidium lobatum.
Lastrea Oreopteris.
Lycopodium Selago.
,, clavatum.
Equisetum sylvaticum.

It thus appears that, singularly enough, the wants of the Sarnians correspond with ours in 34 instances.

Do the following occur in East Kent at all?—

Drosera rotundifolia.[1]
Hypericum dubium.
Comarum palustre.
Pinguicula vulgaris.
Carex vesicaria.
Lycopodium Selago.

The following are surely rarities in East Kent:—

Saxifraga granulata.
Petasites vulgaris.
Achillea Ptarmica.
Jasione montana.
Pinguicula vulgaris.
Utricularia minor.
Chenopodium rubrum.
Habenaria chlorantha.
Juncus glaucus.
Luzula multiflora.
Narthecium ossifragum.
Eriophorum latifolium.
Carex curta.
Carex Œderi.
Festuca loliacea.
Bromus secalinus.
,, commutatus.
Lastrea Oreopteris.
Scirpus fluitans.

Plentiful in few districts, though *occurring* in many:—

Sagina nodosa.
Malva moschata.
,, rotundifolia.
Radiola Millegrana.
Hypericum hirsutum.[2]
Geranium pusillum.[3]
Trifolium arvense.
Ornithopus perpusillus.
Orobus tuberosus.
Peplis Portula.
Helosciadium nodiflorum.
Œnanthe fistulosa.
Tragopogon pratensis.
Arctium Bardana.
Carduus acanthoides.
Bidens cernua.
Eupatorium cannabinum.
Chrysanthemum segetum.
Gentiana Amarella.[4]
Veronica scutellata.
Pedicularis palustris.
Lycopus europæus.
Galeopsis Ladanum.[5]
Scutellaria galericulata.
Lithospermum arvense.
Symphytum officinale.
Plantago media.[6]

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[1] Did grow on Willesboro' Lees, now enclosed.

[2] A limestone plant?

[3] Is this really common *anywhere!*

[4] A limestone plant? I have found it of far less frequent occurrence than *G. campestris.*

[5] [6] Both surely limestone plants.

Rumex Hydrolapathum.
Euphorbia amygdaloides.[7]
Gymnadenia conopsea.
Orchis latifolia.
Allium vineale.
Juncus compressus.
Scirpus sylvaticus.[8]
Carex muricata.
„ acuta.
„ distans.
„ sylvatica.
Aira præcox.
Glyceria plicata.
„ rigida.
Festuca elatior.
Hordeum pratense.
Equisetum sylvaticum.

The italicized species do not grow, I believe, within ten miles of Faversham. Surely *Poterium Sanguisorba* is as common as *Helianthemum vulgare;* I have generally found them together.

The whole Flora of the little Isle of Man does not number quite 500 species,[9] still there are some rarities among them; and as some of your readers may be meditating a summer visit to Ellan Vannin's pretty islet,—

> "The breezy, the bright, the loved home of my fathers,
> Mannin! my graih, my chree! Mannin veg veen!"

a list of its floral "good tidings" may not be out of season just now in the pages of the 'Phytologist.'

Crambe maritima.
Thlaspi arvense.
Cochlearia alpina.
Lepidium Smithii.
„ campestre.
Erysimum cheiranthoides.
Brassica monensis.
Reseda fruticulosa.
Viola lactea.
„ Curtisii.
Silene anglica.
Cerastium tetrandrum.
„ arvense.
Linum angustifolium.
Lavatera arborea.
Hypericum Androsæmum.
Hypericum Elodes.
Erodium maritimum.
Geranium pusillum.
Ulex nanus.
Trifolium fragiferum.
Vicia angustifolia.
Rubus saxatilis.
Epilobium angustifolium.
Sedum anglicum.
Cotyledon Umbilicus.
Crithmum maritimum.
Gnaph. margaritaceum.
Anthemis nobilis.
Pyrethrum maritimum.
Erythræa latifolia.
Convolvulus Soldanella.
Veronica hirsuta.
Mentha Pulegium.
Lamium intermedium.
Stachys ambigua.
Scutellaria minor.
Pinguicula lusitanica.
Polygonum Raii.
Euphorbia portlandica.
Scilla verna.
Alisma ranunculoides.
Juncus maritimus.
Scirpus Savii.
Asplenium marinum.
Adiant. Capillus-Veneris.

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[7] [8] Of rare occurrence in the north of England.

[9] This is a very small number when compared with the 692 species of Jersey, and the 553 of Guernsey, both much smaller islands. Even little Alderney boasts its 313 species on its surface of 4 miles by 1½.—*Vide* Babington's 'Primitiæ Floræ Sarnicæ.'

Periodic Phenomena of Vegetation at Thirsk in 1855.

By J. G. Baker.

The spring of last year was so exceptionally late and inclement, that the dates of the foliation and florescence of plants were retarded considerably beyond the usual time. The following lists have reference exclusively to the neighbourhood of Thirsk, and to a district the average annual temperature of which is rather above 48°. They are taken from a note-book to which contributions were made by various members of our local Natural History Society, and each contains only such species as are included in the Tables issued by the Committee of the British Association for the registration of Periodic Phenomena. I have given the mean temperature of the first six months of the year in 1855, and the number of days during each, in which the mercury sank below 32° Fahr., for comparison with the average.

	Months.					
	1	2	3	4	5	6
Mean temperature in 1855 . .	34·7	25·9	36·3	43·3	45·8	55·0
Average mean temperature . .	34·8	37·3	40·7	47·6	54·5	59·2
Number of frosty days in 1855	21	28	21	11	7	0
Average number of frosty days	17 +	18 +	12 +	8	1 −	0

I. *Foliation of Trees and Shrubs.*—3rd mo. 20th, Pyrus japonica. 4th mo. 4th, Ribes Grossularia; 12th, Sambucus nigra; 13th, Lonicera Periclymenum; 14th, Ribes rubrum; 17th, Ribes nigrum, Syringa vulgaris; 18th, Cratægus Oxyacantha, Prunus Armeniaca, P. domestica, Rubus Idæus; 19th, Æsculus Hippocastanum; 25th, Ribes alpinum; 30th, Pyrus communis. 5th mo. 2nd, Fagus sylvatica; 5th, Cytisus Laburnum; 6th, Acer Pseudo-platanus, Corylus Avellana; 13th, Salix alba; 18th, Vaccinium Myrtillus; 20th, Pyrus Aucuparia, Tilia parvifolia; 21st, Populus tremula; 22nd, Prunus Avium; 24th, Quercus pedunculata, Vitis vinifera; 25th, Betula alba, Populus alba, Fraxinus excelsior.

II. *Florescence of Trees, Shrubs, and Herbaceous Plants.*—2nd mo. 28th, Galanthus nivalis. 3rd mo. 4th, Crocus vernus, Bellis perennis; 7th, Corylus Avellana; 30th, Daphne Mezereum, Viola odorata. 4th mo. 1st, Ranunculus Ficaria; 9th, Prunus Armeniaca; 11th, Populus tremula; 12th, Daphne Laureola; 15th, Petasites vulgaris; 16th, Narcissus Pseudo-Narcissus; 17th, Populus alba; 18th, Anemone nemorosa, Chenopodium Bonus-Henricus, Glechoma hederacea, Vinca minor; 19th, Ribes rubrum; 21st Pyrus japonica; 24th, Buxus sempervirens, Ribes Grossularia; 29th, Pyrus communis. 5th mo. 1st, Oxalis Acetosella; 3rd, Fagus sylvatica, Ulmus campestris; 4th, Arum maculatum, Fraxinus excelsior; 6th, Fragaria vesca; 12th, Pyrus Malus, Ribes nigrum; 13th, Ribes alpinum; 16th, Salix alba: 18th, Paris quadrifolia, Asperula odorata; 25th, Ajuga reptans, Allium ursinum; 26th, Chrysanthemum Leucanthemum; 27th, Acer campestre, Trifolium pratense; 29th, Cratægus monogyna. 6th mo. 1st, Convallaria majalis; 2nd, Cytisus Laburnum; 3rd, Betula alba, Lonicera Periclymenum, Prunus avium, P. Padus, Syringa vulgaris; 5th, Viburnum Lantana; 6th, Spartium scoparium; 8th, Pyrus Aucuparia, Lysimachia nemorum; 16th, Cornus sanguinea; 18th, Polygonum Bistorta; 22nd, Polemonium cæruleum, Berberis vulgaris, Chelidonium majus; 25th, Viburnum Opulus, Triticum sativum; 26th, Nuphar lutea, Solanum Dulcamara; 27th, Geranium pratense, Scrophularia nodosa; 28th, Sedum acre, Achillea Millefolium; 29th, Sambucus nigra, Thymus Serpyllum.

Reviews.

Flora Vectensis: a Systematic Description of the Phænogamous or Flowering Plants and Ferns indigenous to the Isle of Wight. By the late William Arnold Bromfield, M.D., F.L.S., F.B.S., L., and E. Edited by Sir William Hooker, K.H., LL.D., F.R.A. and L.S., and Director of the Botanical Gardens of Kew, and T. B. Salter, M.D., F.L.S., etc. London: Pamplin.

The elaborate character of this Work, the eminence of its editors, the *prestige* of Royal patronage, and, above all, the labour and research bestowed upon it by its amiable and lamented author, render this Flora one of the most remarkable and interesting records of local botany hitherto contributed, even in Great Britain,—especially rich in excellent local floras. To botanists connected with the Isle of Wight it will afford invaluable assistance,—to them it will be indispensable. To the botanical geographer it will be especially useful: for although it is limited to the vegetation of an insulated portion of the south of England, the learned author carefully ascertained the range of the Vectian plants, not merely in the British Isles, but in Europe and other quarters of the globe. Besides an insular flora is *per se* peculiarly instructive; and this *one* affords the means of contrasting the productions of the extreme south of Great Britain with those of the middle and extreme north of our Isle. A comparison of the *Vectian* flora with that of Shetland would be very instructive. The following extract from the Editors' preface will give our readers an idea of the manner in which this work is executed:—

> Dr. Bromfield became resident at Ryde, in the Isle of Wight, in the year 1835, and shortly afterwards conceived the idea of preparing a Flora of the island. He was not content to follow the usual practice in the making of local Floras and Faunas, and to be satisfied by presenting merely a tolerably full list, but he determined that the investigation should be very complete, and that every species should receive an original description: nor was he satisfied with a mere cursory research in the framing of these descriptions or with copying any character from other authors unverified by his own examinations. He was also equally careful to avoid describing general characters from individuals or varieties, and endeavoured, with immense and most persevering care, to select such points as are really the permanent and essential characters of genera and species. To ensure this result he was in the habit of obtaining a very great number of specimens of each species collected from various localities; and, whenever practicable, he endeavoured to compare Isle of Wight specimens with those collected at a distance. Having thus secured sufficient material for investigation, his next aim was to consult every author within his reach for all the characters which different observers had noticed. For this part of his plans he had collected a very ample botanical library, especially of foreign authors. The characters however observed by others were, for his own descriptions, merely suggestive;—none being recorded but such as, after careful examination, he himself found to exist in nature.

The entire volume, inclusive of the Editors' and Author's preface, the introduction and the indexes, contains above 700 closely printed pages. We shall attempt, as usual, to afford our readers a concise view of the contents of this excellent work. In the author's preface there is given a very lucid statement of the scope and nature of the whole. The introduction details the extent, physical features, general view of the vegetation, and other notices connected with the subject. The Natural arrangement is adopted, a great convenience to Botanists, especially to such as wish to compare the vegetation of distant and distinct portions of the earth's surface. The orders, suborders, or tribes, etc., are fully described. The descriptions of the genera and species are usually brief, but characteristic. The localities, time of flowering, are then given; after which generally follows a popular, elaborate, and minute description of the species, sometimes extending to half a page, or in some instances it is still longer.

The remarks on the range, the scientific and popular names, the effects, etc. of the plants are learned, curious, and instructive. We quote the following, because we think we can give a reason why the plant in question is so called:—"It is difficult to account for the origin of the English name Henbane, except by supposing it to be a corrupt translation of the Greek, and properly Hogbean, as the French word 'Jusquiame' and the Italian 'Giusquiamo' are more immediately derived from the same classical root. I can find no allusion by any author, ancient or modern, to any injurious effect on poultry, which might justify the appellation." (Fl. Vect. p. 330.) We used, many years ago, to pass a considerable portion of the summer in or near parts where this weed was very common. Then it was observed in the corn and fallow fields in the northern parts of Huntingdonshire, as plentiful as the common Field-Thistle, *Carduus arvensis*, is in many ill-weeded fields of England. It was quite a novelty to us, who never had previously seen more than a few plants of the Henbane here and there on rubbish or by waysides, or occasionally under a hedge in some rich-soiled or neglected spot. The flowers were beautiful, and the foliage and general appearance of the plant were not disagreeable; it had a rather fetid smell; but several strong-smelling plants are cultivated not for their smell, but for other qualities. Where we were resident the Henbane was proscribed. No sooner did the leaves, which characterize the weed, unmistakingly indicate the species, than its expulsion was decreed, and to the rubbish-heap it was immediately consigned. Wishing to spare an old acquaintance, we pleaded for it in vain. The cogent reason always given for its extermination was its *baneful* effects on poultry. That the poultry there did nibble it, or peck at it, unequivocal proofs were present whenever a plant existed within the reach of domestic fowls. Whether the hens died or only sickened on this salad, we never could learn; but it was popularly believed to be baneful to them, and whether it really was so or not is indifferent. Its injurious effects on poultry were either real or supposed; and in either case the origin of the English name, Henbane, is easily accounted for.

The work is accompanied by an excellent map, drawn on a scale of about an inch to a mile. This will in future be the *vade mecum* of every tourist in the island, whether the objects of his visit be botanical, geographical, or pictorial.

Examples of laborious research, extensive erudition, careful discrimination, and enlarged views of vegetation in general, together with its distribution, are to be found in every page. The limited space of the 'Phytologist' forbids our noticing these in detail; but we shall occasionally present our readers with a selection from the extracts we have made and from pages which we have noted; and these we are assured will give as much pleasure to our readers as they have given instruction and gratification to ourselves.

A New Flora of the Neighbourhood of Reigate, Surrey, etc., by JAMES ALEXANDER BREWER, F.L.S. London: Pamplin.

The terms "A New Flora of Reigate" imply that there is an old or a previous Flora of the same district; and we ought to inform our readers, who, or at least some of them, may not be so conversant with Reigate, its inhabitants, natural and literary history, etc., as we are, that there was a Flora published in 1838 by the late Mr. Luxford, who was well known to the readers of the earlier volumes of the 'Phytologist.' The *old Flora* has been superseded by the *new*, as many or some of us will be in the course of the next two decades. *N'importe*, our places will be filled with as good men and true,—with better, if we may deem that the human race is advancing towards perfection as steadily as the *Floras* are. That the new Flora excels the old, *quantum lenta solent inter viburna cupressi*, may be seen at a glance. It is much larger than the former, but is still far from coming under the category, μεγα βιβλιον μεγα κακον (a great book is a great evil); but value is not always to be inferred from size, or a *boulder* of quartz would be better than a diamond. We will descend to particulars. In Mr. Luxford's 'Flora' the Carices are 20, in Mr. Brewer's they are 28. The Grasses in the former are 42, in the latter 62. Luxford gave us 26 umbelliferous plants, Brewer gives 31. The Old Flora notices 4 Pondweeds (*Potamogetones*), the 'New Flora' contains 10. Both Old and New Floras agree in their arrangement, which is the Linnæan. We have no business to find fault with this, though we should have preferred the arrangement adopted by the compilers of the 'London Catalogue of British Plants.' We would, in addition to this, have mentioned our obligations (*i. e.* those of the botanical fraternity) to Mr. Luxford, the predecessor of Mr. Brewer in this field. We do not know that the author of the 'New Flora' lies under any special obligations to the author of the Old. But *we* do; and we should have been glad to have observed in the present work some recognition of the former, which was honourably mentioned during the life of its author. The good that men do too often dies with them; we mean the remembrance and the memorials of the good done; for goodness itself and all its manifestations are, like *evergreens* and *everlastings*, sempiternal. We cannot say, as we have said in the notice of the List of North Devon Plants, that we were disappointed at not finding some things which we thought almost universal. But we are disappointed at not finding some station or localities for some rare plants; for example, *Helleborus viridis*, Ranmer Common; *Lilium Martagon*, wood near Woodmanstone. The same plant also occurs at Effingham, in a wood there.

In the first article in the 'Phytologist' for June last we find nine species not noticed by the author of the New Reigate Flora, viz. *Nasturtium sylvestre, Barbarea præcox, Spergula nodosa, Petroselinum segetum, Silybum Marianum, Hypochœris glabra* (Reigate Heath), *Campanula Rapunculus, Melissa officinalis, Carex pallescens*. We are obliged to Mr. Brewer for this contribution to our knowledge of local botany, and we cordially recommend it to our readers who have an intention of visiting this charming locality.

A List of Plants growing wild in North Devon. Compiled by the Rev. T. F. Ravenshaw, M.A.

We cannot better describe the character of this 'List' than in the words of its Reverend Compiler:—"The following List of Plants growing wild in North Devon, though it by no means pretends to be a catalogue of our entire Flora, will, it is hoped, be found of some assistance to the botanical tourist, who, with a little perseverance, may hope to be rewarded with not a few prizes for his herbarium. Till within comparatively a few years, the district seems to have been but little searched; for a careful perusal of the '*Flora Devoniensis*,' published in 1829, resulted in the acquisition of scarcely a dozen names." It should be observed that this 'List' forms a portion of a 'Local Guide-Book to Ilfracombe;' and as the article 'Botany' is printed on the 193rd and following pages, it may be inferred that other subjects of natural history are noticed. The compiler further says:—"The former edition of the 'North Devon Guide' contained a local list, which was revised by J. Ralfs, Esq., and which has formed the groundwork of the present. To this the compiler has added the contents of shorter lists, recently furnished by P. H. Gosse, Esq., Rev. C. Kingsley, Mrs. Ludlow of Morthoe, Rev. H. Anders, Rev. J. M. Chanter, and others, as well as many plants which have fallen under his own observation." The List comprehends upwards of five hundred plants,—a respectable flora for a corner of Devon. It should be observed that the catalogue is not one of the "entire flora" of the district. For example, there are only three plants of the Pondweed family noticed, only 18 of the *Cyperaceæ*, 21 of the *Gramineæ*, 4 *Juncaceæ*. According to the proportions generally prevalent between the number of species in distinct Orders, there might be expected about ten *Potamogetons* and 8 species of the Order *Juncaceæ*, about 60 in the Order *Cyperaceæ* and 70 in *Gramineæ*. The plants of the Goosefoot (*Chenopods*) and the Dock families are also probably underrated at 12 and 14 respectively. In the List there are only six of the former and seven of the latter.

We hope our amiable correspondent, who has sent us this List, will not for a moment surmise that we are depreciating his contribution to the knowledge of local botany. Far from this; we are obliged to every contributor who enlarges our acquaintance with the localities of the most prominent individuals of the vegetable kingdom, and we only make these statements for the enlightenment of our readers generally. We ourselves have often felt the want of such a guide to the natural beauties and natural productions of places where we have been sojourning for a season; and we do most cordially thank the compiler of the present list for giving us a much larger amount of botany than we have ever seen in a guide-book. After this long preamble we beg to inform our readers what rarities they may expect in North Devon, if they have the happiness of ever visiting that lovely region. Some of these are *Matthiola sinuata, Meconopsis cambrica, Viola lutea, Silene quinquevulnera, Lavatera arborea, Erodium moschatum, Geranium phæum, G. striatum, Linum perenne, Vicia sylvatica, Lathyrus Aphaca, L. sylvestris, Alchemilla vulgaris, Eryngium campestre, Rubia peregrina, Cotyledon Umbilicus, Saxifraga umbrosa, Hypochœris maculata, Erythræa pulchella, E. latifolia, Asperugo procumbens, Anchusa sempervirens, Atropa Belladonna, Verbascum Lychnitis, Mentha rotundifolia, Euphorbia hiberna, E. Paralias, E. portlandica, Urtica pilulifera, Lilium pyrenaicum, L. Martagon, Fritillaria Meleagris.* But we must stop here. Our notice may induce our readers to visit Ilfracombe and its interesting vicinity, but it will not supersede the necessity of Mr. Ravenshaw's botanical guide to the rarities of the charming locality; they will doubtless do what we should do, viz. avail themselves of such a trusty guide. We beg to add a remark on the absence of certain species which we had believed to be all but universally distributed. *Papaver dubium* is a northern species, but it occurs plentifully in Surrey and Middlesex. Is it absent in the west of England? *Cardamine amara* is another absentee; we scarcely know why. So are *Lychnis vespertina, Malva moschata, Geranium pusillum, Potentilla argentea, Helosciadium inundatum, Silaus pratensis, Heracleum Sphondylium, Torilis infesta, Anthriscus vulgaris, Valeriana officinalis, Veronica Anagallis,* etc. We ought to state that *Saxifraga umbrosa, Geranium striatum,* and probably a few other species, we have selected as examples of this *Flora,* are stated to be *not indigenous.* We again heartily recommend this 'List' to the notice of all who intend to visit Ilfracombe.

The Natural History Review. Published quarterly. London: Williams and Norgate.

The reviews in this the July number of this excellent periodical are, as usual, mostly zoological. The only botanical articles are a review of 'A Popular History of the Palms,' by B. Seemann. Among the original communications there is a Paper on the *Fungi* of the South-west of Ireland, by William Andrews, Esq. The author of this paper expresses his wonderment that so little attention has been devoted to a tribe of plants so remarkable for the beauty and simplicity of their forms, their wonderfully varied and vivid colouring, and, above all, as being vegetable curiosities distinguished by their economy, duration, regularity of appearance, reproductive capabilities, etc. We have often expressed the same feeling, and venture again to repeat it. Their economical applications, especially as articles of diet, have been hitherto strangely neglected. Experience has satisfied us that many species would, if properly prepared, be excellent esculents, and it is not improbable that several might be useful in medicine and the arts. We are much obliged to Dr. Lindsay for directing our attention to the hitherto almost neglected tribe of *Lichens*. Will any mycologist take the trouble of investigating this far more numerous family with a like object? We predict that his investigations will be attended with similar or perhaps greater results.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Rare Westmoreland Ferns.—I find I have in the '*Ferns of Great Britain and Ireland, Nature Printed,*' inadvertently given to Mr. Clowes of Windermere the honour of having discovered in Westmoreland both *Woodsia ilvensis* and the curious nariety of *Cystopteris fragilis* called *interrupta*. Both these, it appears, were originally discovered by Mr. Isaac Hudhart, now in Australia, and the habitats were pointed out by him to Mr. Clowes, to whom however the public are indebted for the knowledge that these interesting plants occur in the Lake country. I learn from Mr. Clowes that Hudhart found *W. ilvensis* first in 1853, on a Westmoreland mountain, and again in 1854 on two other mountains in the same county, and on one in Cumberland. For very obvious reasons it is not desirable to indicate these habitats more explicitly. Mr. Clowes informs me that he has lately found *Lastrea dilatata* var. *glandulosa* in quantity near Windermere. T. MOORE, *Chelsea.*

Verbascum virgatum.—Can any of our correspondents or readers inform us if the above be a Continental plant? It is not in the common German floras, nor in the flora of the environs of Paris. Withering appears to be the first British botanist who separated it from *V. Blattaria*. Both Gerarde and Parkinson admit both as distinct, and the former seems to have regarded them as plants which are found wild in England. See Gerarde, 777, 778, and Parkinson, 64. About London and in Surrey and Essex plants of these species are occasionally found in places which leave no doubt of their having been the offspring of plants formerly cultivated. We have reason to think that they are truly wild in Somerset and Devon. It may be remarked that *V. floccosum* or *pulverulentum* and *V. Lychnitis* were formerly combined under the name of the latter. Does any botanist know anything of *V. thapsoides* as an English plant? *V. thapsiforme*, Schrad., is admitted by German botanists to be very near *V. Thapsus: Voriger sehr ähnlich*, i. e. to *V. Thapsus*.

Thlaspi arvense.—This plant occurred plentifully in the summer of 1855 in Prince Albert Road or Street, newly formed between Kensington and Brompton. The Penny-Cress abounded about halfway between these two places. *Nicotiana* and other exotic plants sprang up at the Brompton end.
Chelsea. E. I.

The Soap Plant.—The Vienna Journals announce that a firm in California has sent home to that city some seeds of the Soap Plant. It grows wild in California, rising to the height of about a foot. The plant fades away in the month of May, and inside each is a ball of natural soap, superior, it is asserted, to any that can be manufactured.—*Home Companion.*

There is a Soap-tree mentioned in an earlier volume of the 'Philosophical Transactions,' a native of the West Indies. Can any of our correspondents or readers inform us if it is cultivated or even known in England?—Ed.

Drosera anglica.—Mr. Editor,—Can any of your correspondents verify the statements that the above-mentioned plant grows in Hampshire, Dorsetshire, or Devonshire? Dartmoor forest and some parts of Hants are probable localities. On the Continent its range is between the north of France and the Pyrenees, including the French Alps. In Germany it is reported to grow on the same places as *D. longifolia.* Q.

Osmunda regalis.—Did you ever see this in perfection? At Killarney, the year before last, I found its fronds seven feet high,—more picturesque than any Palm. I wonder the Irish Roman Catholics do not use them dried on Palm Sunday. It has however one peculiarity,—all the finest plants grow in situations flooded in winter and one to three feet above water in summer, so that their roots are always in water. It has all the characteristics of a Tree-Fern, its caudex often being two feet deep in the ground, and, in large specimens, five or six inches in diameter: it is extremely difficult to get up. I succeeded in bringing home five or six, but was obliged to be content with small specimens, not above two inches in diameter, and these I could only get out of the bank of a stream where I could tear down the soil, a very sandy alluvial loam. It gave me some idea of the difficulty of procuring and importing Tree-Ferns.—R. (*ex Gardeners' Chron.*)

Polystichum affine.—I beg to announce to the readers of the 'Phytologist' what I believe to be a new *species* of British *Polystichum*, the characters of which I will endeavour to show in a future number. It is probably the same to which Mr. Newman alludes at p. 119 of his new edition of the 'British Ferns,' as a variety of *P. angulare*, found by Mr. Jenner in Sussex, although the description of his plant is somewhat at variance with mine. I beg to propose the specific name of "*affine*," unless it prove to be an already described Continental Fern. W.

Cork-barked Elms.—The Elms growing in the upland districts of this parish, the soil stiff white clay, have their shoots covered, even when quite young, with corky bark in great abundance; they are varieties of *Ulmus glabra*, and called here the Hertfordshire Elm. I gathered the enclosed from a hedgerow at the side of a wood; all the shoots, even those growing vigorously, were covered with the same bark. T. RIVERS.
Sawbridgeworth.

[The Elm in this state, with its bark producing rifted cork, is the *Ulmus suberosa* of Ehrhart. Can our experienced correspondent explain the cause of this condition of the bark? All the European Elms, except *U. montana*, the Wych Elm, and *U. effusa*, appear to be liable to the affection, sometimes being smooth-barked, sometimes cork-barked. We believe the cause of the cork-formation has never been explained.]—*Gard. Chron.*

Gentiana Pneumonanthe.—John Tatham, in answer to the query (page 247) of the 'Phytologist,' informs the Editor that he never found *Gentiana Pneumonanthe* near the village of Clapham; the plant is too conspicuous to have been overlooked.
Settle, 1856.

Native Plants.—Mr. Editor,—Mr. Loudon, in his 'Arboretum et Fruticetum Britannicum,' says, "In the present day botanists consider all those plants indigenous to a country which have existed in it beyond the memory of man or the existence of written records, and which propagate themselves freely by seed without human agency." Query, are botanists generally willing to adopt the above canon? QUERIST.

Communications have been received from

Joseph Woods, F.L.S.; C. C.; Edwin Lees, F.L.S.; D. W.; Dr. L. Lindsay; John Windsor, F.L.S.; Rev. H. A. Stowell; J. G. Baker; C. A. Johnson; W. P.; David Moore, A.L.S.; An Irish Lady; Thomas Howarth; George Jorden; Rev. W. T. Bree; Rev. W. A. Leighton; H. H.; E. Marcus Attwood; A. G. More, F.L.S.; W. L. Notcutt; Thomas Moore, F.L.S.; J. S. M.; Dr. Hugh Cleghorn, F.L.S.; Rev. Gerarde E. Smith; T. Rivers; G. B. W.

BOOKS RECEIVED FOR REVIEW.

Bromfield's Flora of the Isle of Wight. Edited by Sir W. J. Hooker, K.H., etc., and Dr. T. Bell Salter, F.L.S.

Moore's Irish Grasses. Third edition.

A Botanico-Topographical Map of the Isle of Wight.

On the Genus Rubus. *By* Joseph Woods, F.L.S.

If we wish fully to understand the various species of *Rubus*, it is necessary to be acquainted with the peculiar mode of growth prevalent in the genus. I propose in the present Paper to examine this as it occurs among the *Rubi* with digitate leaves,—a tribe to which I think we may fairly apply the name of Brambles.

With the first germination of the seed I am not acquainted; but I presume the growth to be similar to that of the young shoot from an old root. This is what Mr. Borrer has well called *assurgent*, *i.e.* a shoot which, beginning with a nearly upright stem, has more or less of a tendency to arch downwards, being exactly the opposite of *ascending*, which denotes a curve upwards. No Bramble has an ascending stem; nor can it be properly called decumbent or procumbent, both of which indicate a shoot which, at first nearly horizontal, turns upwards towards the end; neither would it be correct to say of any of them that the stem is prostrate: if it were so, it could not climb over hedges and bushes in the way we actually observe it. After arching downwards from the erect beginning and again meeting the ground, it becomes prostrate, often extending to a great length; and towards the autumn, if it touch the ground, it sends forth roots at its extremity, but never from the intervening parts,* curving a little, according to Babington, so as to form a second little arch, to obtain a better position for fixing its new roots in the soil. This can rarely be seen in the natural situations of the plant, as the stem is generally so much supported by the bushes among which it grows as to render the process unnecessary. Where the shoot is so much elevated that it cannot reach the ground in autumn it sometimes, instead of roots, produces a great number of small prickles, as if prickles and roots were interchangeable. This is principally observable among the forms of *R. cæsius*. The extremity of the shoot seems to prepare itself for rooting before any roots are actually formed; the prickles become smaller and more numerous, the leaves smaller and farther apart, and, for some inches before the end, are often totally wanting.

This shoot produces no flowers (except perhaps in *R. saxatilis*) in the year in which it is formed. Early in the succeeding year it sends out branches along its whole length; those nearest the original root are generally barren, like itself, but these are followed by erect flowering branches from one to two or even three feet long, but gradually becoming shorter as we approach the end of the shoot. The first and the last panicles are apt to be imperfect; those which best characterize the plant rise from the middle of the shoot.

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* Babington says of *R. Sprengelii*, that it has a *creeping* barren shoot. I do not know if this is correct: nothing of the sort is noticed in the 'Rubi Germanici.'

Though the tendency to arch downwards is common to all the Brambles, yet it is so much more strongly marked in some than in others that one subdivision of the tribe has been called erect, and is believed never to curve so much as again to reach the ground, much less to take new root there. This peculiarity is important, but unfortunately cannot be shown in the herbarium; even with the growing plant it requires some caution. The flowering branches of the second year, arising from the assurgent shoot, are erect, and this is also the case with the lower branches, which do not produce flowers. When therefore this branch survives the year, and brings forth flowers on the third year, the plant has an appearance of being more erect than it truly is, and may be erroneously attributed to the division with upright shoots.

The shoots of the year are sometimes round, and sometimes marked more or less decidedly by five angles. This character varies a good deal in the same species, and even in the same individual, the angular form of the young shoots filling up into a cylinder as it gets older. Yet some species show much more strongly than others a tendency to the prismatic form, and some are entirely without it; it cannot therefore be neglected in the formation of specific characters.

The leaves of the barren shoots are received as the typical form of those parts of the plant; they are quinate or ternate. In the former case very often pedate; not exactly however with the precise arrangement usually found where that term is applied; for in the pedate leaf we find the additional leaflet or leaflets rising on the inside of the first lateral leafstalks, but in *Rubus* it is always external. The central stalk is much longer than those on each side of it, and these again invariably longer than those of the outer leaflets. The typical shape is that of the middle leafit. No *Rubus* has a septeno-digitate leaf, but when there are seven leafits it is always because the middle leaflet is divided into three.

All the Brambles have a tendency to produce a smaller number of leafits on the flowering branch; but this tendency is stronger in some species than in others. In some quinately-leaved *Rubi* we hardly find a leaf with so many as five leaflets on the flowering stem; in others they extend even into the panicle. The panicle itself is much more leafy in some plants than in others,—sometimes with ternate and sometimes with simple leaves of a full and even a large size.

Weihe and Nees, in the 'Rubi Germanici,' represent the leafits in *R. Sprengelii* and *R. saxatilis* as having an attenuate base. In all other species it is rounded or cordate, but the general shape of the leaflet is rarely properly ovate or cordate;—when it is so it is a thing to be noticed;—but the usual form widens upward and is afterwards contracted into an acuminate termination. It is subrotund, oval- or almond-shaped,* with a rounded cordate base. Except perhaps *R. tomentosus,* I think the whole tribe has acuminate, or what are sometimes termed cuspidate,† leaves; in none are they apiculate. I do not mean to say that these characters will be found in every individual leafit; for the leaves of *Rubus* are by no means of one uniform character, but that the majority of the leaves will exhibit them, not only in every species, but in every individual. All the leafits of all *Rubi* are irregularly serrate, but in a manner varying from incise or laciniate to an arrangement where the teeth are almost all equal. In all, also, there is a little apiculus to each serrature, so that the term crenato-serrate would perhaps be not misapplied to them. The leaves on the flowering branches are generally more irregular than they are on the barren, and more so on those at the base of these branches than on the upper part. The leaves on the flowering branches are often ternate when those on the barren shoot are quinate, and these ternate leaves are often very broad below and lobed above, showing a tendency to divide into two. Where the leaf is strictly digitate, the angles formed by the general and partial stalks are about equal, each of 60°; where it is pedate, the angle between the stalks of the middle and external leafits is usually considerably more than 60°, and consequently that between the latter and the general leafstalk considerably less. Where the lateral leafits are lobed, the central vein of the lobe usually divides from the other at an angle smaller than 60°.

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* I have on a former occasion proposed to apply the term *elliptic* to leaves which, being somewhat like lanceolate, were yet too broad to be included under that name. This seems to be considered as rather too bold an application of a familiar geometrical form, and I therefore now adopt the term *almond-shape* to express the same thing.

† In the 'Philosophia Botanica' *cuspidate* is said to be acuminate, but with a rigid point. Following out this idea, I have, in the 'Tourist's Flora,' defined it as a hardened extremity to the leaf, not depending on the prolongation of the midrib. The other use of the word, in which it stands for abruptly acuminate, without reference to its substance, is not confined to the writers on *Rubus*.

The separation or overlapping of the leafits forms a character of some value. This may take place variously: the intermediate leafits may overlap the terminal; the outside leafits may overlap the intermediate; or the outside leafits may overlap each other; and this of course depends on the length and direction of the stalks and on the width of the leafit, and especially of the base of the leafit. Individuals may probably be found in all the species where the intermediate leafits sometimes lap over the terminal one, and perhaps there is hardly any where the external do not pass over the intermediate one. It is only where both these circumstances take place, or where the latter occurs at the same time, that the one external leafit lies over the other, that I should admit it as a specific distinction. Like most other marks in the genus, we note only the extremes, and cannot follow it through all the intermediate steps. In the truly overlapping leafits the outer are very nearly, if not quite sessile.

We now arrive at the panicle, where we find differences which may serve to characterize species, and which may even be made use of in forming subdivisions of the genus, but of which it is very difficult to offer such a description as would give a distinct idea to a person not familiar with the genus, and which sometimes slide so gradually from one form to another that even the most practised botanist is at a loss to decide to which section a given plant may belong.

I have on a former occasion observed that the word *Cyme* is applied to two very different forms of inflorescence. One is exemplified in the Elder, where it might well be called a panicled umbel; the other, occurring in *Rosa* and in many of the *Caryophyllaceæ*, where the middle stalk pushes out a branch on each side, and these branches subdivide again in the same manner, each with an intermediate flower. I cannot see in either of these dispositions much relation to a wave (*κυμα*), from which I suppose the word is derived; but I have proposed to restrict the word cyme to the latter arrangement, as exhibiting a peculiar and characteristic mode of division for which we otherwise want a name. Where however this arrangement occurs once and is not repeated, it can hardly be called a cyme; it might perhaps be named a *cymel* or a *cymet,* or, as the word is Greek, a *cymary,* but I prefer the English word *knot,* as sufficiently expressive. A knot then is a group of three flowers or fruits, one in the middle on a short stalk which is a continuation of the common stalk, and one on each side on longer stalks, springing at one point or nearly at one point from the central stalk. These knots characterize the inflorescence of *Rubus,* and the panicle is rarely without some indication of a tendency to form them. It is however often only a tendency, sometimes on one side a mere rudiment, or perhaps a bract indicating the place where the stalk should be; sometimes even this is wanting, and there is merely a branched stalk, always however with the one branch forming a continuation of the common stalk. Where there are two stalks they are perhaps not opposite, and the lateral stalk is not always longer than the central one. Again, we do not find even these indications throughout the panicle, and indeed in the first section of the Brambles it is hardly exhibited except with the terminal flower of the panicle. On the other hand, the arrangement is sometimes repeated in the lower branches of the panicle. Yet even here I should hardly call it a cyme, since it shows no tendency to repeat itself any further, and is mixed with the more simple arrangements, but would term it a compound knot.

The prevailing panicle in what is usually the first segment among the Brambles has been called a corymb. This is hardly correct. The stalks are not successively longer so as to produce a conical outline, but the form is rather that of a short cylinder, each lateral stalk supporting, not a knot, but a single flower; where however the plant is luxuriant and the panicle large, one or two *knots* may be found on the lowest stalks.

It is one of the difficulties of the genus *Rubus* that we often are at a loss to say whether the whole of the flowering-shoot is to be considered as a leafy panicle, or whether it ought to be described as branched and supporting several panicles. If we look through the 'Rubi Germanici' for this purpose, we may find examples to support either view of the subject, and still more if we refer to the plants themselves instead of to the figures, and have before us several specimens of each species. In the *Rubus fastigiatus* of that work, any botanist would say there are several panicles, and in *R. pubescens* it would be acknowledged as a single leafy panicle. We cannot, I am afraid, rely upon it as an absolute character; but the greater or less tendency of the flowering shoot to throw out branches from its lower parts, and the greater or less tendency to produce leaves among the flowers, may be of use sometimes in determining species.

I feel rather uncertain whether we can go beyond these points in employing the disposition of the panicle. On looking through the 'Rubi Germanici' we feel inclined to carry it farther, but the subject is not taken up by any British Batologist, and I doubt if it could be done to advantage: for instance, in *R. carpinifolius* it is said of the panicle, "desinit sursum pedunculis simplicibus," and this is confirmed and farther explained by the plate, where the panicle ends in what is very strictly a raceme. But though most of our botanists have a plant they call *R. carpinifolius,* I have seen no British specimens which decidedly exhibit this character, and it is the more suspicious since we find an approach to it in the not well developed panicle of several species. The form of the panicle has an additional value from its connection with the mode of growth, and we may determine with some confidence whether the plant is sub-erect or merely assurgent by the disposition of the inflorescence.

There are some species which have a panicle, but not forming knots. This seems to be very much the case with *R. tomentosus,* and we find it more or less perfectly marked among the *Cæsii.* Of its value as a specific character I do not venture to pronounce.

(*To be continued.*)

Botanical Tour in the Highlands of Perthshire; from Dunblane to Doune, Callander, the Trosachs, Loch Katrine, Port Menteith, etc.

(*Continued from page* 424.)

On the 4th of July, at six o'clock in the morning, our pedestrian tour actually commenced. A *Gillie-truish-an-arnish* (*Anglicè,* a baggage-carrier) was procured for us by our obliging host of the Dunblane Arms, a most comfortable house, by the way, where the fare is excellent and the charges moderate. Our Gillie trudged along with the *impedimenta* (the impediments of travelling); his *clatter* was interesting, for he knew the Highlands of Perthshire, and the Lowlands too, it may be presumed. He was able to point out the chief mountains of the former, and the position and direction of the passes, lochs, and rivers of both. His acquaintance with the prominent outlines of the country was serviceable, for he knew all the towns of Perthshire, their distances and bearing from each other; and being besides a person of observant habits, he was pretty well qualified to aid those who wished to be acquainted with the physical, moral, and religious condition of the occupants of the country, as well as to see something of its picturesque beauties. From Dunblane to Doune the country is open, and has a bare appearance, fringed or dotted here and there with woods, rather than adorned with trees. The Scotch are a thrifty people. Trees are very useful as shelter, but they are often detrimental to the operations of agriculture. The country however is not unenclosed; but the fences have more of a useful than of an ornamental character. The road is of an up-hill and down-vale nature; nothing hinders the the traveller from getting a glimpse of the scenery in all situations, and generally a good view is obtainable.

Soon after seven o'clock we reached Doune, a half-highland, half-lowland town, of no great pretensions either for its size or its situation. Here the Teith, the most important tributary of the Forth, is a fine and rapid river; it sets in motion the immense wheels of the celebrated Deanston cotton-mills. The castle of Doune stands on an elevated promontory at the confluence of the Teith and Ardoch. It is a massive edifice, surmounted by a spacious square tower, eighty feet in height, at one end of the front, and by another on the opposite extremity; the whole forms a large quadrangle. This ancient stronghold is an erection of greater extent and strength than of beauty; but it was once the residence of one of Scotland's earls, and the locality where the tragical event of the murder of the "Bonnie Earl of Moray" occurred,—a tragedy which is the subject of one of the beautiful songs and melodies of Scotland.

The Botany from Dunblane to Doune is like the country—not very interesting. In agricultural districts the botanical rarities are chiefly annuals. Scotland possesses but few of these,—

much fewer than England. Annuals are however on the increase in both kingdoms. Only *Scleranthus annuus* and *Chrysanthemum segetum* were collected in our morning's walk between Dunblane and Doune, the latter not in flower. By the margin of the Teith, between Doune Inn and the Castle, we noticed *Geum rivale, Œnanthe crocata,* and *Ægopodium Podagraria,* a plant constantly present about hedges and waysides; also several Ferns; but nothing interesting was collected here.

Doune, as has been already stated, is only four miles from Dunblane and eight miles from Callander. The road to Callander lies along the left bank of the Teith, and passes through natural scenery which is passably pretty,—much more so than that between Stirling and Doune. But the weather was very unfavourable: only a few drops fell before six o'clock, but by eight o'clock the rain commenced in right earnest, and there were no tokens of its abatement. We might have remained at Doune, but the inn where we breakfasted had no attractions even on a rainy day. A rainy day at an inn, even if a comfortable inn, is one of the disagreeables which pedestrians sometimes experience. This inn at Doune was as uncomfortable as the weather. This, we can say from experience, is "the exception, not the rule." The inns in Scotland are as comfortable as the hosts are courteous. We say nothing about their charges: every man should live by his calling, and summer is the time when inns are most needed, because in this season travellers abound; it is the time of the innkeepers' profit, and a rainy season to them is like rain in harvest. It might be unsafe to publish a catalogue of the miseries of an inn of the *bad sort,* and yet it would be cruel to wish even our enemy to learn them experimentally; therefore let those who wish to know what Highland inns were less than fifty years ago, read Dr. Macculloch's account of the inn at Callander which he visited sometime in the first quarter of the current century. The inns at Callander have fully kept pace with the advancing civilization, conveniences, and elegances of the country in general, and of the Highlands in particular; but the inn at Doune still remains to convince the incredulous Southrons that the Doctor was a faithful narrator of what he saw and what he suffered. It exists, it is to be hoped, as the solitary evidence that the accounts given of the Highlands, not more than thirty or forty years ago, were neither caricatures nor exaggerations.

A pitiless rain, which never ceased till several hours after we reached Callander, frustrated all our botanical expectations. This was however no great disappointment, because all the plants occurring between Doune and Callander, and many more than these, were seen over and over again in the course of our peregrinations. The most prominent plants, seen from the road, were *Iris Pseudacorus* (just coming into flower) and *Habenaria bifolia*, with her taller sister, *H. chlorantha*, which had been in flower for some time.

Our first walk from Callander, which was the centre of our operations for several days, was along the Lochearn road to Kilmahog, a hamlet adjoining the Pass of Leny, which we did not visit at this time, reserving it for a future opportunity. The road to Ben Lawers by Lochearn Head and Killin passes through this Pass and along the northern shore of Loch Lubnaig, one of the finest walks in the highlands of Perthshire. Although our object was chiefly to observe the vegetation of the Central Highlands, yet to pass by the celebrated picturesque objects which attract annually thousands of tourists of all grades,—from the man of title and property, with his escutcheoned chariot, to the humble pedestrian with his knapsack and on his legs,—would have evinced want of taste and curiosity both. In the summer season two or more coaches leave Stirling for the Trosachs daily; in fine weather the number of visitors is increased manifold. Such celebrities as the Trosachs, the Brig o' Turk, Benvenue, and Loch Katrine, being only nine or ten miles distant, could not be passed by unvisited, and especially as an opportunity for botanizing would be afforded along the shores of Loch Vennachar, Loch Achray, and through the Trosachs.

Our short walk along the road from Callander to Kilmahog, only between two and three miles, did not yield much. The beauty and luxuriance of *Rosa villosa*, the common Red Rose of Scotland, got some considerable share of our admiration, and also its near connection, *R. tomentosa*, with white flowers, which have usually a slight tinge of pink. These are the common hedge Roses of the parts of Scotland which we visited. There was noticed besides these a smooth and shining-leaved Rose, not then in flower, which might probably belong to the genuine Dog-rose series of this genus. *Spiræa salicifolia* appeared frequently in the hedgerows and in other bushy, shady places. That it was truly wild in every station where it grew, is not affirmed; but it does not appear likely that it was ever planted for a hedge-plant, for which purpose it is worthless. It is also certain that the roads and the hedges too are of a very recent origin. These vales and passes were surely covered with woods, as they are still, except in spots that have been cleared for cultivation and for roads; consequently we may look for, and expect to see, in the hedges representatives of all the ligneous vegetation of the locality or district through which the road with its double hedge passes. One of the most conspicuous plants in these parts is *Corydalis claviculata,* the white climbing Fumitory. This species, which with us in the south of England is an insignificant, humble object, imparting no character whatever to the scenery around, here covers the thatched roofs of cottages, creeps over ruins and rocks, somewhat like Ivy, and oftentimes completely covers, with its elegant foliage and its graceful flowers, large spaces of several square yards extent. *Galium boreale* and several *Hieracia,* few of them as yet in blossom, fringed the margin of the beautiful and rapid stream which issues from Loch Lubnaig, "where Lubnaig's loch supplies the Teith." This river flows, or rather falls and rushes, through the Pass of Leny, and meets the other branch of the Teith which comes from Loch Katrine through the Lochs Achray and Vennachar. These two fine streams unite a little above Callander, and in their fork enclose, on two sides, a beautiful meadow and some very fertile fields. The base of the famous mountain Ben Ledi, which is bounded by Loch Vennachar on the south and by Loch Lubnaig on the north and north-east, is washed as well as bounded by these two branches, which, by their union, form the Teith.

In the evening we walked out across the Teith on the cow-pasture lying to the west of Callander, between the road which is the nearest way to the Trosachs—but not the coach-road—and the road to Port Menteith. In the boggy places here we collected *Pinguicula vulgaris, Narthecium ossifragum,* not yet in flower (4th of July), *Gymnadenia conopsea,* the most fragrant of our native Orchids, especially in a moist or dewy evening, and the Cotton Grass (*Eriophorum angustifolium*), a plant famous in Celtic poetry:—

> "Oh, what is fairer than the Canna, waving in the breeze,
> When summer laughs in flowery pride, and verdure clothes the trees?"

A greater minstrel than the author of these neat lines notices the *Canna* in another state,—

> "Still is the Canna's hoary beard."

On the banks and along the bottom of a small rill adjoining *Mimulus luteus* was well established; it was also observed in the ditch by the side of the Menteith road, but not so plentiful as in the above-mentioned locality, the little drain through the meadow.

Another very interesting walk from Callander is along the Comrie road, which leaves the village on the east and slants up the base of the hill which is crowned by Callander crags. This road crosses the Keltie burn, and passes through Glen Artney, having Ben Voirlich on the left and the Braes of Doune on the right. This is a very desolate tract, of great extent, but of a stern and inhospitable aspect. Peat-mosses, wide moors, bluff, round, heathery hills, and miles of very rough pasturage, comprise the scenery of this uninviting landscape. In this direction there is no cultivation visible. A very few *Rowan-trees* (Mountain Ash) skirt the Kailyards of the few dwellings of the herdsmen; everywhere else, in this region, trees are as rare as they are in the King's Park at Edinburgh. On the Callander side of the hill, *Habenaria bifolia* and *H. chlorantha* were collected, the former in great force, the latter only sparingly; with these, *Orchis maculata* and *O. latifolia* abounded. Of all the Orchids none was so plentiful and beautiful as *Gymnadenia conopsea*; in an evening and early in the morning, the perfume of a bundle of these plants is exquisite. *Gymnadenia albida* here began to appear, but not so plentiful as the other above-mentioned members of this family. Near the Falls of Bracklin, a single specimen of *Habenaria viridis* was gathered in a pasture-field; this was the sole representative of the species noticed about Callander; it did not occur in great plenty anywhere. There occurred fewer examples of this Orchis than of any of the others, which are common in Scotland. The variety of this genus called *H. chlorantha* was not very common; the rest were all about equally common: only *Orchis latifolia* did not perhaps attain a vertical range equal to that of *O. maculata* and *Gymnadenia conopsea*.

On the 5th we set out to walk to the Trosachs by the west or lower road, which crosses the Teith about the centre of the village, and, leaving the road to Menteith on the left, walked along the Coilantogle road. The botanical aspect of the vegetation on the wayside, tempted us into a wood about half a mile from Callander, and about midway between the bridge of Callander and the bridge near Coilantogle. In this wood, among other things of some interest, were collected *Trollius europæus,* both in flower and in fruit; also *Trientalis europæus,* now very nearly out of flower, and *Vaccinium Vitis-Idæa. Vinca minor* was collected at Callander, but the reporter is not quite sure that it was observed in this wood. A very fine *Rubus* was observed here and in many other parts of Perthshire. The blossoms were pure white, and the erect habit of the plant, with its large flowers, rendered it there a very ornamental object. The common Orchids abounded here, as they did all along the roadsides from Callander to Loch Katrine. One of the most remarkable,—not for its rarity, for it occurred plentifully, but for its singularity, in having but a single flower at the extremity of the stem,—was a variety of *Orchis maculata,* which variety might be called var. *uniflora.* Plenty of the more common forms grew in the same spots, some with larger, some with smaller spikes.

After spending half an hour in botanizing among the trees, we rejoined the road and travelled onwards, crossing the western branch of the Teith by the bridge near Coilantogle, and, a little further on, met the coach-road to Loch Katrine by Kilmahog, the northern and most picturesque of the two roads leading from Callander to this celebrated locality. The northern road was not new to us, and the one we chose was not only so, but it shortened our journey two miles. The road skirted along the eastern shore of Loch Vennachar and we were induced to look into the lake for aquatics. None however were visible except a few plants of *Littorella lacustris.* On the roadside, where the road impinges on the wooded hill, a solitary plant of *Hypericum Androsæmum* was observed, the only example of this fine species noticed by us in all our walks onward and aside, forwards and backwards, and these amounted, on a rough calculation, to upwards of 250 miles.

The absence of wayside (viatical) plants, which abound in the south of England, was one of the singular features of all our walks in Scotland. A botanist could scarcely walk twenty miles in England without seeing some examples of *Hypericum perforatum,* the most common of the genus in the midland and southern counties. *Hypericum pulchrum*, in Scotland, takes the place which *H. perforatum* holds in England. *H. pulchrum* is not uncommon in the south and centre of our island, but the localities where it is found, heathy, bushy, open places, are the exception and not the rule in England. In travelling from London to the south and south-west, where heaths abound, *Hypericum pulchrum* also abounds; but in travelling from London to the north and east, the same plant is scarce, because heathy places are so. *H. perforatum* is not uncommon in the east of Scotland; yet in Perthshire it was so uncommon that a single example was not seen in walks amounting in all to 250 miles, as has been already stated. Again, an *Orchis* by the wayside in England is about as rare as a white crow: this phenomenon is occasionally seen in chalk-districts; but to meet with half-a-dozen species of this Order in Scotland, either on the roadside or in the adjoining pastures, within a few yards of the road, is as common an occurrence as blackberries in September.

The Brig o' Turk (by the way, there are two Brigs o' Turk, like the *Twa Brigs of Ayr* and the two bridges of Stirling, the ancient and the modern one,—we stick to the former), the Trosachs, and Loch Katrine are classical objects,—scenes that have been described by the greatest master of descriptive poetry; our puny attempts at description would be an impertinence, or something worse. But it may be told to our readers that the guide-books are in error when they tell us, "near the east end of Loch Achray the road (to Loch Katrine) crosses, by the Bridge o' Turk, a stream which issues from the vale of Glenfinlas, a desolate tract of ten miles in extent." But there are two Brigs o' Turk as there are two Simon Pures in the Play, "A Bold Stroke, etc."; and the ancient one, which crosses the river not far from the Brig o' Turk Inn, is the *real* one. This inn has for its sign a representation of the headmost hunter, and the two well-known lines as a motto,

> "And ere the Brig o' Turk was won,
> The headmost horseman rode alone."

And there he is represented, as John Gilpin is before the Bell at Edmonton, while performing his equally celebrated ride to Ware. This road and this bridge, mentioned by the guide, *were not* when Sir Walter wrote his famous epic, which incited so many admirers of picturesque scenery to visit the spot, so romantic naturally, and rendered still more interesting as the imaginary scene of the spirit-stirring acts of that fascinating invention, "*The Lady of the Lake.*" The Brig o' Turk, won by the venturous headmost horseman who rode alone, is the old bridge which unites the banks of the stream which issues from Loch Katrine, flows through Loch Achray and enters the upper end of Loch Vennachar below this ancient bridge. The Bridge of Turk of the guide-books is of course not older than the road to Loch Katrine, and this road was not made for several years after Loch Katrine had attained all its celebrity. Guides are not always to be trusted. But we saw the Old Brig, not its representation at the inn only, "and seeing is believing."

Loch Katrine and Loch Lomond may be, at little expense of toil and money, both visited in a day. A steam-boat sails from the lower or Trosachs end of Loch Katrine, to the upper end at Stronachlocher, where there is a landing-place and an inn; this voyage is accomplished in about an hour. The steamer waits here about a quarter of an hour and then returns. This little trip affords the tourist, from the boat's deck, a very comfortable view of Ellen's Isle, the noble conical elevations of "the bold Cliffs of Benvenue," on the south or left-hand side, when the spectator is looking up towards the upper or western end of the Lake,

"While on the north and middle air,
Ben-an heaved high his forehead bare."

In the distant west, the Alps of Arroquhar, beyond the lofty Ben Lomond, form a grand termination to the view; whilst close at hand, among the cliffs and defiles of Benvenue, are seen the Pass of Beal-an-Duine, where Fitz-James lost his "gallant Grey;" and the Cor-nan-uriskin, "the Goblin's Den," in which Douglas concealed his daughter when he went to yield himself to his sovereign. On the right, stretching along the lake, are the Braes of Strathgartney, grazed by hundreds of cattle and thousands of sheep,—a peaceful scene.

From the inn at Stronachlocher, by the Pass of Inversnaid,—through which a good road passes, and on which there are now, in the season, vehicles of many descriptions,—Loch Lomond may be reached in an hour. Here there is a steam-boat waiting to take on board the tourists from Loch Katrine. These may proceed to Glasgow or ascend Ben Lomond, visit the celebrated pass and village of Aberfoyle,—the scenes of Baillie Nicol Jarvie's exploits with his fair cousin, Helen McGregor,—or return to the Trosachs or Brig o' Turk inns. As we had walked from Callander, a distance of nine or ten miles, and had to return by the same simple conveyance, we were contented with a view of the fine mountains that skirt both sides of Loch Lomond at its upper or northern end, and returned in our steamer to the Trosachs, and remeasured back our way to Callander. The botany of this episodical tour, "in search of the picturesque," was not of a very interesting nature, with the exception of the first mile of our way, when we diverged to our left into the wood that skirts the way between Callander and Coilantogle bridge.

In the evening, a visit to Callander crags was not much more productive. It is true, fine views of Ben Ledi, Loch Vennachar, Cambusmore, the vales of Forth, Teith, Stirling, etc., were obtainable. Some *Hieracia* and a *Potentilla,* probably *P. opaca,* were the only spoils which we bore away from the base of these barren rocks. A walk along the eastern branch of the Teith, and through the cornfields below Bochastle, yielded a few plants of some interest, viz. *Crepis paludosa, Galium boreale, Galeopsis versicolor,* and our old acquaintance *Myrrhis odorata,* in abundance.

The 6th of July was the day of rest, and we attended divine service in both the churches of Callander, viz. the National or Established Church in the morning, and the Free Church in the afternoon. Monday the 7th was a rainy day, a day of Highland rain, so well described by Dr. Macculloch, who recommends the tourist in the Highlands, if he carries an umbrella, always to carry it open; for if he does not, he will be wetted to the skin by a sudden plash or sheet of water before he has time to undo the loop of his *parapluie.* In the Doctor's time umbrellas were folded up in a *ring,* not by a loop and button as now, and the time of slipping up the ring would not, at an average, be one-tenth of that required for detaching the loop from the button; yet, in that short interval of time, a Highland shower found its way through all the ordinary protective *media,* and reduced the hapless pedestrian to the uncomfortable condition of "a hen in a rainy day." For the benefit of future botanical tourists, we subjoin the Doctor's rather exaggerated account of a Highland shower.*

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* *Highland Rain.*—"I thought that I had known Highland rain in all its forms

In the evening we lectured on Botany to the boys and girls of the school, and to one or two good-natured people who condescended to listen to what was expressly adapted to the capacity of a juvenile audience. On the 8th we paid another visit to Loch Katrine, wandered along the shores of the lake an hour or so, and retraced our steps to Callander. The next day, which was to be our last day at Callander, an expedition to Menteith was both planned and executed by a walk over the hills, as nearly as possible, in a south-westerly direction. The distance to the village and Loch of Menteith from Callander is seven miles; half of this distance was walked, before we saw either the lake or the church, across a trackless, high, moory waste, with here and there only a sheep-track to guide us. From these hills we had very extensive and some very interesting views. The chief of these were the Ochils, the Fintry Hills, Stirling and its romantic Castle, the Forth (with its widened expanse of water), glittering under the sun-beams, Alloa, famous for its ale, Carron, for its cooking-stoves, and Kippen, celebrated for its facetious and *home-draughting king*. We reached Menteith, after a toilsome walk "through the moors among the heather," in about three hours. The Crowberry (*Empetrum nigrum*) was the sole interesting novelty of this long walk; but we lighted on some ornithological specimens, and in particular upon a covey of the birds that feed on the berries of this plant. The poor little things had not long left the shell.

By the churchyard of Menteith, opposite to the inn (an inn is an important house in the Highlands, for there inns are few and far between), we noticed some plants of *Valeriana pyrenaica*, which had no appearance of being natural in that spot, although, as reported, it may exist in some of the many woods with which that neighbourhood abounds. By a wall in the village *Malva moschata* was observed. This plant must be placed in the same

and mixtures and varieties in Skye, Mull, at Killin, on the top of Ben Lawers, but nothing like the rain on Ben Ledi did I ever behold before or since. In an instant, and without warning or preparation, the showers descended in one broad stream, like a cascade from the clouds, and in an instant they ceased again. If the lowlander carries an umbrella, it may be useful for him to know, that if there is a button to undo or a ring to slip off he will often be wet through before either can be effected. There is an interval of fair weather; even the cloud which is to produce the rain is not very obvious, when, in an instant, and without a sprinkling or even a harbinger drop, the whole is let go on your head as if a bucket had been emptied on it."

class as the *Valerian* above mentioned, "not wild in Scotland, so far as known to us." Several plants of *Malva sylvestris* were seen in gardens, or where they had been certainly planted; but a single example of any wild Mallow never occurred to us in Scotland. We know that our common Mallows, viz. *M. sylvestris, M. moschata,* and *M. rotundifolia,* are registered as the spontaneous productions of the country about Edinburgh, Glasgow, and Aberdeen; but we did not see any of them except those above mentioned, and they were evidently stragglers, if not the descendants of the formerly-cultivated individuals. Our time at Edinburgh was very short; but large and striking plants, like those of the Malvaceous Order, could not have been passed by unnoticed, if they existed there as they, or two of them at least, do about every town and village in the south of England. In Perthshire we ignore the Mallows entirely, because we believe Nature ignores them; and in reference to the *Valerian* of Menteith, we may bring in the verdict which a Scotch jury is allowed to give when the evidence is conflicting or unsatisfactory, viz. that the claims of *Valeriana pyrenaica,* as a wild plant in Scotland, are "not proven" by the evidence which we have to offer. In a meadow adjoining one of the cottages at Port Menteith fine specimens of *Sedum Telephium* were collected. This plant is probably wild, though it is often kept in cottage-gardens: its vulnerary or sanative virtues are perpetuated in its vernacular name, "Live-Long," which may have been conferred on it because of its life-prolonging properties. As our intention was to start the next day for Killin, we made the best of our way homewards by the road, in order to rest ourselves, and prepare for a longer walk than any of our previous walks since leaving Edinburgh.

One of the last and pleasantest walks we had about this town was to a place not half a mile below the bridge of Callander, called the Camp. A camp it may well have been in the olden times: its rampart and fosse still exist as memorials of a warlike age, but the interior is like a lawn. Many plants grow here, though we only noticed the following: *Geranium sylvaticum,* as usual very fine; *Hieracium prenanthoides,* not yet in flower; and *Meconopsis cambrica.* We were delighted to recognize this old acquaintance, which we had observed in the days of "auld lang syne," when we ran about the Braes of Cowie, Feteresso, and Dunnottar, and in our simplicity did not know that this rare plant was not as common as the white Saxifrage (*S. granulata*) or the red Campion. In the camp at Callander it was growing at the very bottom of the fosse (ditch). We would not venture to say that it is what is generally understood by "truly wild," but it was certainly naturalized and well established. We have seen it in Wales, where it certainly is *wild*, and it is probably so in Devon and Cornwall. Why not in Scotland? The evidence is not entirely satisfactory.

(To be continued.)

On the Occurrence of Cnicus Forsteri (Smith) *in Worcestershire.*

By Edwin Lees, F.L.S., etc.

I believe that the rare *Cnicus Forsteri* of Smith has been seldom heard of out of Sussex, where it was discovered by the late Mr. T. F. Forster; at any rate I have never met with any botanist who had professed to have gathered it in the Midland Counties. I was therefore pleased, on an excursion with the Worcestershire Naturalists' Club in the present month, to find this presumed hybrid Thistle in a very wet pasture near Crowle, about four miles eastward of Worcester. In passing through this meadow, the grass of which was growing high and ready for mowing, I was first struck by meeting with the Meadow Plume-Thistle (*C. pratensis*), which is now very rare in Worcestershire; and in looking about for more of this, I noticed that near the brook that divided the meadow there was an amazing quantity of the Marsh Plume-Thistle (*C. palustris*), which, scattering itself about, approached that part of the pasture where alone I could find any specimens of *C. pratensis*. While I was gazing around, I remarked a singular group of Thistles with widely-spread panicled flowers,—a few crowded together at the summit, as in *C. palustris*,—but the stem not winged, and only cottony, as in *C. pratensis*. This Thistle, on taking home and comparing with Smith's original description in his 'English Flora,' I found to coincide exactly with *C. Forsteri*.

Though it must be an uncommon case to find a hybrid Thistle, yet Sir W. J. Hooker and Mr. Babington, as well as those botanists who have seen the plant, now generally agree that *C. Forsteri* is a hybrid between *C. pratensis* and *C. palustris*. The Thistle I found as above certainly seemed *intermediate* between the two

Thistles just named, though the flowers appeared to me more to resemble those of *C. arvensis* than either. The flowers were at the end of long branches, springing from the axils of the leaves from halfway up the stem, several, but not all, two together, but the top of the panicle having three or four clustered together after the manner of *C. palustris*. The stem is furrowed, very cottony, but *not winged,* only that between the origin of each leaf *a few scattered prickles appear, with an incipient but imperfect border.* The leaves are very similar to those of *C. palustris,* but whiter beneath, and with weaker spines. The lower leaves, which are very sharply pinnatifid, are lengthened into a decurrent base, beset with long spines, almost as weak as hairs, so that the plant is handled without any difficulty. I showed the plant to my friend Mr. Thomas Westcombe, who has a good botanic garden here, and has some experience with the Thistly tribe, and he agreed in opinion with me that the plant gathered could be only *C. Forsteri*.

As confirmative of its probable hybridity, the plant I gathered grew on the confines where *C. pratensis* was located and not far from specimens of *C. palustris*. There were about five stems, all close together, and perhaps springing from the same root, but this I did not ascertain, leaving the root in the soil, so that I hope other botanists may find it next year.

Worcester, July, 1856.

Revised List of Craven Hieracia, *after Backhouse.*

To the Editor of the 'Phytologist.'

Sir,—With your permission, I beg leave to insert a revised List of the *Hieracia* as a substitute for the former one, and for which I am chiefly indebted to Mr. Baker, who, with Mr. Backhouse of York, has so diligently and successfully studied this genus, concerning which, it is well known, there has been for a long period considerable difficulty in defining and determining the different species.

In the List above mentioned I also inserted (p. 349) *Orobanche Hederæ* (if not *O. rubra*) as found sparingly near Settle. Mr. Baker has determined it to be *O. rubra,* and says, in a note to me, "We have found *O. rubra* in North Yorkshire, in a precisely similar station to Aldes Scar."

PILOSELLOIDEA.

Hieracium Pilosella. On dry banks, common.

(amplexicaule)

PULMONAREA.

Hieracium cerinthoides. On the Scars near the summit of Ingleborough, and sparingly along Attermire to the rocks above Malham Tarn and at Gordale. In Ribblesdale, near Stainforth Force, and on Mill Island.

The form of the district is var. *anglicum* of Backhouse.

H. pallidum. Sparingly at Gordale.

H. Gibsoni. Tolerably plentiful along Giggleswick and Attermire Scars. On the rocks about Gordale and Malham Tarn.

H. cæsium. With the preceding, but less abundant.

H. murorum. With the two preceding, but far from common.

H. vulgatum. Everywhere almost on rocks and stony places, from the low ground to the main limetone scars of Ingleborough. —A remarkable variety with ovate leaves (*rubescens*, Bkh.) is found at Gordale and Giggleswick.

ACCIPITRINA.

H. prenanthoides. Hesleden Gill, and by the Ribble, near Stainforth Force.

H. umbellatum. By the Ribble, near Settle, and other places.

H. crocatum. Attermire Scars.

H. boreale. Plentiful in fields and stony places near Settle.

The plants supposed to be *H. villosum* and *H. Iricum* are erroneously so named. *H. tridentatum* (perhaps a form of *rigidum*) may most likely be found in Craven, although not yet seen there. It is plentiful at Lymm and Purlington, etc., near Manchester.

Reigate Plants. *By* J. S. Mill.

Errata in the list of Reigate Plants inserted in the June number of the 'Phytologist.'—"Woodbatch" for Woodhatch; "Wenham Mill" for Wonham Mill; "Maiden Park" for Marden Park; "Godbroke" for Gadbroke. For "the north-eastern" half of the country (p. 337, line 14 from the bottom), read "the *south*-eastern:" and for "about the *rocks* of Box Hill" (p. 339, line 15), read "about the *roots* of Box Hill."

This list of plants is in a great degree superseded by the new 'Reigate Flora,' just published by Mr. Brewer; which, as might be expected, contains most of the plants which I have mentioned, with many others which I had not detected. I had however the good fortune of finding some which have escaped even Mr. Brewer. Of one of these (*Catabrosa aquatica*) I have observed a new station, much nearer to Reigate, even since the publication of Mr. Brewer's work, viz. in the swamp at Whiggey, on the west side of the Brighton road, at a very short distance from the stile: so difficult is it to exhaust this rich botanical district, in which I do not believe there is anywhere a square quarter of a mile not containing one or several rare plants.

Might I take the liberty of asking Mr. Brewer, through your journal, whether *Alchemilla vulgaris* is set down as growing in "damp meadows on the banks of the Mole, and in other places in the neighbourhood of Dorking," from his own observation, or on the authority of Luxford's Flora? I have always suspected a mistake on the part of Mr. Luxford's informant, not as to the plant, but the locality, as I can hardly imagine that a plant so conspicuous, and incapable of being mistaken for any other, can exist in some abundance in that neighbourhood without my having seen it in thirty-five years' botanical knowledge of the locality.

Permit me to ask a similar question respecting *Carex teretiuscula* near Whiggey, which has been suspected to be an error of Mr. Luxford.

Mr. Brewer locates *Carex ovalis* in "damp situations on Reigate Heath and Redhill." To these may be added Earlswood Common, which is at present covered with it.

In my list I omitted one of the habitats of *Sagittaria sagittifolia*—near the Merstham ponds.

Has any of your correspondents attended to *Veronica* with the variegated corolla of *V. agrestis* and the large flower of *V. Chamædrys?* It is not very uncommon in Surrey, and I last year observed it in great abundance in cornfields on the heights overtopping Smitham bottom, between Croydon and Beggar's Bush. Is this a permanent variety of *agrestis?* and is it not often mistaken for *V. Buxbaumii,* reports of which are now starting up everywhere, though wanting not only the uniformly blue colour of *Buxbaumii,* but the broadly divergent lobes of the fruit?

Review.

The Natural History Review for July, 1856. London: Williams and Norgate.

From the pages of this instructive periodical we have extracted the following portion of a Paper by Mr. Andrews on Fungi, read before the Dublin Natural History Society, Dec. 14th, 1855:—

"So far back as the month of April, 1844, I recorded in this Society the discovery of the Morell (*Morchella esculenta*) by Simon Foot, Esq., in the Pine-woods at Hollypark and at the Little Dargle, and at the time alluded to the state of our knowledge of the Fungi of this country. Since then but little has been brought forward new in that branch of study. The specimens, among others, that I shall submit to you this evening are the different stages of growth of the Birch-tree Polyporus (*Polyporus betulinus*), which I do not find to have been hitherto recorded in any of the notices on that section of the botany of this country. This fine and handsome species is of annual growth, assuming a rapid and large development in the autumn months on the decaying trunk of the Birch-tree. It is met with in the more secluded parts of Torc and Cromaglouin woods, in the neighbourhood of Killarney, where, on the huge trunk of a fallen Birch-tree, I obtained specimens measuring more than two feet across. The pileus is a pale reddish-brown or deep fawn-colour, occasionally spotted with a darker brown; flesh very thick and white; hymenium of the same substance as the pileus, and not separated from it. The Fungus is attached to the tree vertically by a short, thick, rather sessile stipes. The pileus is suberose or corky, extremely fleshy in the recent state, but of a dry and fibrous nature when preserved, and in this respect resembles *Polyporus fomentarius*, a species remarkable for making Amadou, and which Fungus is also found growing on the Birch in Cromaglouin wood. The *Polyporus betulinus* is considered of rather local occurrence both in England and Scotland, as well as another species of interest that I have obtained on the branches of the Birch (*Stromatosphæria elliptica*). The *Polyporus fomentarius*, or real Amadou, is distributed in every region of the globe; and although met with on Oak, yet it is most generally seen on the Birch, the species in the tropics being identical with those of the temperate zones."

We beg to advert to some clerical or typographical errors in the notice of the 'Phytologist,'—a notice, by the bye, we are glad to see in the 'Natural History Review.' '*Vaucheria Sessilis*' should be, we presume, '*Vaucheria sessilis*.' 'A Few Words on our Indigenous *Barlareæ*' should be 'A Few Words on our Indigenous *Barbareæ*;' also 'Swiford's Reigate Flora' should be 'Luxford's Reigate Flora.'

BOTANICAL NOTES, NOTICES, AND QUERIES.

Pteris aquilina.—(*Retrospective.*)—You may assure your correspondent ('Phytologist,' XV. p. 390) that the specimens distributed through the Botanical Society of London by Mr. Kirk are genuine *Pteris aquilina;* at least I may speak thus positively of that which reached me from this source. Their peculiar appearance is owing to their being in the "seedling" state. Cultivators of Ferns are generally conversant with the juvenile state of the *Pteris*, which makes its appearance very frequently, especially in hothouses, apparently in consequence of the soil employed having wild spores deposited amongst it. Those who have not made acquaintance with the plants in this state may well be excused if they do not at once recognize it, the appearance it presents being very unlike that under which the *Pteris* is usually observed; and yet the habit of the mature plant may be traced even in these infants as soon as two or three fronds are produced, while they show, no less than is the case in vigorous mature fronds, that the term "three-branched," sometimes applied to this species, is erroneous.

T. Moore.

P.S. At p. 380, five lines from top of page, *for* "suspended" *read* "separated."

Centaurea nigrescens.—From the seeds of *Centaurea nigrescens*, gathered in Sandhurst parish, near Gloucester, and sown at Barming, near Maidstone, the ordinary rayless form of *C. nigra* was produced. From the seeds of *C. Jacea*, gathered near Tours, on dry, chalky limestone, and sown on heavy, wet soil at Clay Hill, Enfield, the true *C. Jacea* was produced, with the scales of the involucre silvery brown, and all jagged, not in the least pectinated. From this I conclude that there are two species (*C. Jacea* and *C. nigra*), and that *nigrescens* is a variety of the latter. This opinion differs from that of Hooker and Arnott, in the sixth edition of the 'British Flora,' who consider there are three species, and from Cosson and Germain, in the 'Flore des Environs de Paris,' who consider the three as varieties of one species.

E. M. A.

Sagina maritima.—We are indebted to a kind and acute Correspondent for the following retrospective critique (see 'Phytologist' for August, 1856, Descriptive British Botany, pp. 90, 91, 93, 94):—

"It is probable that *Sagina maritima*, Grenier, is not identical with *S. maritima*, Don. The 'variety *elongata*' to which you make reference is *Sagina debilis* of Jordan. We have both *S. debilis* and *S. maritima* on the Yorkshire [coasts ?]; and I have not much doubt that they are distinct specifically. You have omitted all mention of *S. densa* of Jordan, for an account of which see the fourth edition of Babington's 'Manual,' p. 91, line 6. What is *S. depressa?* Is not *depressa* a misquotation or misprint?

"*Alsine rubella.*—It is, I suppose, by some awkward error of the press that you have got the paragraph about 'var. *media*' printed here. Mr. Hort's plant is *Spergularia media* of Linnæus, a plant common on all our coasts, identical specifically with Smith's *A. marina;* for specimens, *vide* my fasciculus of critical plants.

"*Alsine stricta.*—'Teesdale Moors, Yorkshire.' Not known to occur anywhere within the limits of Yorkshire. The sole Teesdale station is on the Durham side of the river."

We wish our obliging correspondent would favour the readers of the 'Phytologist' with some simple distinctive characters of his fasciculus of critical plants.

N.B. We do not remember from what source *S. depressa* was derived. It is a quotation, and when we discover its author the discovery shall be announced. It may have been from Reichenbach, either from his Fl. Excursoria, or his Iconographia Fl. Ger., or Plant. Criticæ. We have not at present the means of settling the point.

We are indebted to our kind correspondent Dr. Windsor for the following corrections or additions to his Settle List of Plants:—"Permit me to mention one or two points. Under *Saxifraga aizoides*, 'as well as *S. aizoides*' should be 'as well as *S. oppositifolia*;' under *Sedum reflexum*, 'Dalaire-lane bottom' should be 'Dalacre-lane bottom.'"

Rare Plants on Wandsworth Common.—In and on the banks of a lateral cutting on the line of the London and South-Western Railway through Wandsworth Common, opposite to the County Jail and between two bridges which cross the railway, the following were gathered:—*Veronica spicata* and *Dianthus barbatus* in Furze-bushes on the bank at the Wandsworth or eastern end, the former plant well established; *Lycopodium inundatum* and *Drosera rotundifolia* on the wet, heathy turf a little further down the cutting, and a little further to the west; *Melilotus vulgaris*, Willd., and *Œnothera biennis* on a mound of shingly, gravelly clay near the railway and towards the west end; *Lathyrus latifolius* on the bank at the west end. This plant was apparently established; it was not in flower, but it had a cluster of unexpanded flower-buds. J. A.

Chelsea.

Rare Plants in a Meadow near Walham Green and Little Chelsea.—In addition to the very rare *Cyperus fuscus*, which still grows here, there were noticed, on the 15th of August, 1856, the following rarities:—*Trifolium fragiferum*, *Helosciadium repens*, a variety of *H. nodiflorum*, *Polygonum minus*, with a variety, *P. erectum*, Bab., *Rumex palustris*, Sm., and a *Ceratophyllum*, probably *C. submersum*, not in fruit. J. A.

Chelsea, August 17th, 1856.

Communications have been received from

George Jorden; J. Windsor, F.L.S.; John H. Davies; William Cheshire; Clara Crawford; W. L. Notcutt; John Smith, F.L.S.; Charles A. Johnson; J. Longman; T. W. Gissing; C. A. C.; Maxwell T. Masters; David Moore, A.L.S.; J. W.; James Bladon; John E. Sowerby.

BOOKS RECEIVED FOR REVIEW.

Notes on Books, etc.

All Communications, Books for Review, etc., for the PHYTOLOGIST, should be addressed to the Editor, care of the Publisher, 45, Frith Street, Soho, London, where Advertisements are received until the 22nd of the month.

Notes on the Hartz Flora. *By* W. LAUDER LINDSAY, M.D.

At a time when weekly steam communication with Leith, Hull, London, and others of our great seaports, brings Hamburg almost to our doors,—when the facilities for continental travelling are greater than those for exploring many parts of our own island, it is matter of surprise that the Hartz Mountains are not more familiar to British botanists. A pedestrian tour during the summer of 1850 convinced me of the excellence of this field, not only for the botanist, mineralogist, and geologist, but for the mere tourist—the wanderer in search of novelty and change of air. The mineral treasures of the district are exceedingly varied; its geological relations are most instructive; its flora, in consequence of the circumscribed character of the Hartz range, which rises from the midst of the vast plain of North Germany, is peculiar and rich; and the Hartz scenery bears a great resemblance to that of the finest parts of the Highlands of Scotland. During several wanderings on the Continent, as well as at home, I have met with no more pleasant and easy tour than that of the Hartz. The Hanover and Brunswick railway conveys the tourist direct from Hamburg to the foot of the Brocken, and he can readily explore the whole district in a week. The intending traveller will find Brederlow's guide* an invaluable assistance: it is much more scientific in its nature than the majority of guidebooks, containing as it does copious notes on the Natural History of the Hartz district. With a view to illustrate the general characters of the Hartz Flora, I append a list of the more interesting plants which occur at or about the chief localities generally visited by tourists.

In the vicinity of Schierke and Elend, at the base of the Brocken,—a district rendered classical by Goethe's 'Faust,'—occur—

Imperatoria Ostruthium. Myosotis sparsiflora. Ranunculus aconitifolius.
Myrrhis odorata.[1] Sonchus alpinus. Arabis Halleri. Hieracium pratense.

Near Elbingerode:—

Orchis ustulata. Habenaria viridis. Gymnadenia albida.

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* "Der Harz: zur Belehrung und Unterhaltung für Harz-reisende," von C. G. Fr. Brederlow.

[1] Comparatively a rare plant in the Hartz.

Thesium pratense.
Botrychium Lunaria.[1]
Trifolium spadiceum.
Crepis hieracioides.
Galium rotundifolium.
Geranium sanguineum.
Phyteuma orbiculare.
Arnica montana.
Meum athamanticum.

In the Bodethal, within a circuit of a few miles round Marmormühle, many rarities occur, and *inter alia*—

Echinospermum deflexum.
Cynoglossum montanum.
Pyrola uniflora.
Dentaria bulbifera.
Digitalis ambigua.
Rubus saxatilis.
Ajuga genevensis.
Phyteuma nigrum.
Athamanta Libanotis.
Chærophyllum hirsutum.
Solorina saccata.
Parmelia marmorea.
Parmelia gypsacea.
Sagedia clopina.
Collema melænum.
Collema dermatinum.
Gymnost. Donianum.[2]
Mnium serratum.
Hypnum polymorphum.

On the meadows and marshes about Wienrode, at the mouth of the Bode, grow—

Iris sibirica.
Pinguicula vulgaris.
Habenaria viridis.
Thesium pratense.

In the neighbourhood of the Rosstrappe, one of the most romantic ravines of the Hartz:—

Verbascum Lychnitis.
Calamagrostis littorea.
Equisetum pratense.
Primula elatior.
Allium montanum.
Allium Schœnoprasum.
Geranium lucidum.
Ranunculus aconitifolius.
Dianthus cæsius.
Lactuca virosa.
Lactuca perennis.
Lactuca guercina.
Laserpitium latifolium.
Pulmonaria angustifolia.
Taxus baccata.
Potentilla rupestris.
Potentilla alba.
Chrysocoma Linosyris.
Bupleurum longifolium.
Aconitum variegatum.
Aster alpinus.
Silene Armeria.
Convallaria Polygonatum.
Rubus saxatilis.
Draba muralis.
Cotoneaster vulgaris.
Rosa arvensis.
Verrucaria viridula.
Endocarpon miniatum.
Sticta sylvatica.
Stitca fuliginosa.
Parmelia muscorum.
Collema tremelloides.
Collema nigrescens.
Scolopendrium officinale.
Woodsia ilvensis.
Asplenium Breynii.
Orthotrichum Hutchinsiæ.
Bryum alpinum.
Hypnum alpinum.
Hypnum undulatum.
Hypnum rivulare.
Hypnum velutinoides.
Bartramia Halleriana.

The Blankenburg district, which is somewhat extensive and exhibits a considerable diversity in geological structure and physical configuration of surface, is correspondingly rich in its Flora, which includes both alpine, subalpine, and lowland plants:—

Geranium pyrenaicum.
Muscari botryoides.
Achillea nobilis.
Phyteuma orbiculare.
Petasites albus.
Valerianella carinata.
Helminthia echioides.
Centaurea solstitialis.
Teesdalia nudicaulis.
Alsine viscosa.
Euphorbia dulcis.
Medicago minima.
Vicia lathyroides.
Silene Otites.
Orobanche cærulea.

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[1] In quantity.

[2] The only station as yet known for it on the Continent.

Orobanche elatior.
Orobus niger.
Genista pilosa.
Stipa capillata.
Stipa pennata.
Adonis vernalis.
Anemone pratensis.
Bromus commutatus.
Linaria Elatine.
Linaria spuria.
Galium tricorne.
Ajuga Chamæpitys.
Astragalus hypoglottis.
Alyssum montanum.
Gagea saxatilis.
Orchis palustris.
Schœnus nigricans.
Bupleur. rotundifolium.
Bupleurum falcatum.
Utricularia neglecta.
Leontodon palustre.
Thrincia hirta.
Juncus acutus.
Juncus obtusiflorus.
Rumex aquaticus.
Rumex Hydrolapathum.
Rumex maximus.
Rumex palustris.
Chærophyllum aureum.
Campanula glomerata.
Lilium Martagon.
Geranium phæum.
Hypericum pulchrum.
Pinguicula vulgaris.
Carex fulva.
Trifolium strictum.
Eryngium campestre.
Viola palustris.
Spiranthes autumnalis.
Artemisia campestris.
Malva moschata.
Thalictrum minus.
Asperula cynanchica.
Asperula tinctoria.
Veronica spicata.
Euphrasia lutea.
Cineraria palustris.
Salix cinerea.
Salix fusca.
Salix repens.

Goslar is a very poor botanical district: the chief reasons for which probably are the arid nature of the rocky soil, and the great number of mining and smelting works, which are constantly belching forth sulphurous acid, arsenious acid, and other gases highly inimical to vegetation. The only interesting plants that need be mentioned are—

Genista anglica.
Teucrium Scorodonia.
Nymphæa alba.
Lycopod. complanatum.
Lycopodium Selago.
Barbula Bruchiana.

The Wernigerode district possesses a fair average of rarities, viz.—

Bromus erectus.
Corydalis Halleri.
Poa sudetica.
Tulipa sylvestris.
Dianthus superbus.
Astragalus Cicer.
Trifolium scabrum.
Listera cordata.
Corallorhiza innata.
Cephalanthera ensifolia.
Epipactis microphylla.
Cypripedium Calceolus.
Aspidium aculeatum.
Buxbaumia indusiata.
Lecanora ventosa.

The following may be mentioned as characteristic of the Okerthal:—

Alsine verna.
Arabis Halleri.
Carex agastachys.
Woodsia ilvensis.
Asplenium Breynii.
Gyrophora hirsuta.

The vicinity of the interesting little iron-smelting village of Rübeland, on the Bode, has a rich Flora,—both Cryptogamic and Phanerogamic. About Bielshöhle occur—

Arabis Halleri.
Aconitum Lycoctonum.
Polemonium cæruleum.

Near Baumannshöhle:—

Anemone sylvestris.

On the neighbouring hills :—

Saxifraga cæspitosa.
Sesleria cærulea.
Geranium lucidum.
Cardamine hirsuta.
Cardamine sylvatica.
Cardamine impatiens.

On the banks of the Bode :—

Rumex aquaticus.
Mentha crispata.
Mentha rubra.
Barbarea arcuata.
Barbarea stricta.

and the following Cryptogams :—

Asplenium viride.
Weissia pusilla.
Weissia tristicha.
Jungermannia subapicalis.
Grimaldia fragrans.
Riccia bifurca.
Bartramia Œderi.
Hypnum molluscum.
Funaria hibernica.
Didymodon capillaceus.
Didymodon flexicaulis.
Encalypta ciliata.
Encalypta leptodon.
Collema fasciculare.
Lecidea decipiens.
Lecidea candida.
Lecidea lurida.
Lecidea cinereo-virens.

On the Brocken, about Neustadt, at the base of the mountain, occur—

Dianthus deltoides. D. superbus. Asplenium germanicum. Erysimum odoratum.

And on the summit (Brocken-höhe) there are the following :—

Anemone alpina.
Carex rigida.
Carex vaginata.
Hieracium alpinum.
Hieracium Halleri.
Linnæa borealis.
Polypodium alpestre.
Thesium alpinum.

On the Brockenfeld :—

Eriophorum alpinum.

These grow on the higher peaks of the Oberharz :—

Listera cordata.
Corallorhiza innata.
Digitalis purpurea.
Carex pauciflora.
Empetrum nigrum.
Andromeda polifolia.
Calamagrostis Halleriana.
Vaccinium uliginosum.
Vaccinium Vitis-Idæa.
Oxycoccos palustris.
Scirpus cæspitosus.
Sonchus alpinus.
Blechnum boreale.
Lycopodium Selago.
Lycopodium annotinum.
Lycopodium complanat.
Lycopodium alpinum.

The following species occur on the Brocken and neighbouring mountains :—

Anomodon striatus.
Grimmia unicolor.
Grimmia uncinata.
Gymnomitrium adustum.
Jungermannia Kunzeana.
Jungermannia Wenzelii.
Opegrapha petræa.
Lecidea Morio.
Lecidea glacialis.
Lecidea atro-rufa.
Lecidea artica.
Lecidea armeniaca.

Achtermannshöhe.—Its wild neighbourhood is particularly rich in Cryptogams,—a prolific nursery of Mosses and Lichens. Juncus setiformis is abundant on the northern slope of the summit, and at the base of the hill Polypodium alpestre grows luxuriantly.

Alterbruck.—Ranunculus hederaceus, elsewhere rare in the Hartz, as also Asplenium Breynii and Scolopendrium officinale.

Andreasberg.—Mountain meadows very prolific. Lilium bulbiferum in great profusion on the meadows to the right of the Glück-auf-Klippen.

Borkenkrug.—Imperatoria Ostruthium. Lerchenfeld, Betula nana.

Braunlage.—In the garden-hedges, Imperatoria Ostruthium, Myrrhis odorata, rather rare.

Büchenberg.—On the meadows before the Büchenberg, Juncus filiformis and nigritellus; in the wood, Pyrola uniflora and Senecio tenuifolius; about the Iron-mines, Galium saxatile; on bare places in the woods, here and there, Tormentilla reptans, Rosa tomentosa.

Clausthal.—Heracleum angustifolium, on the Bockswiese.

Falkenstein.—Sempervivum soboliferum on walls, and Tordylium maximum in thickets.

Güntersberg.—Mentha crispata on the stream which forms the beginning of the Selke; in thickets, Aconitum variegatum and Cammarum; on the meadows about Strassberg, Carex pulicaris and Selinum Carvifolia.

Hardenberg.—Atropa Belladonna, and many interesting Cryptogams.

Hasselfelde.—Alisma natans in the Hassel; in ponds, Scirpus acicularis, Stellaria glauca; on the meadows, Iris sibirica, Meum athamanticum, Arnica montana, Hypochœris maculata, Trifolium spadiceum; in fields, Euphorbia Esula and Chrysanthemum segetum.

Harzberg.—Ranunculus hederaceus, the "Teufelsbädern."

Haimburg.—On meadows, Scorzonera hispanica, Astragalus Cicer; in the wood at Michaelstein, Coronilla montana, Viola mirabilis, Lithospermum purpureo-cæruleum, Inula hirta.

Hohneklippen.—Listera cordata, Corall. innata, Scirpus cæspitosus, Carex Œderi, Empetrum nigrum, Eriophorum vaginatum, besides many rare Cryptogams. Only station in Germany for Orthotrichum Drummondii.

Huyseburg.—Blitum virgatum; in the forest, Fragaria elatior, Epipactis microphylla; on the banks of the Huy, especially, Orchis pyramidalis, O. militaris, O. fusca, Scorzonera hispanica and humilis, Thesium montanum, Lathyrus heterophyllus, Pyrola media, Lysimachia thyrsiflora, Thalictrum collinum, Hieracium piloselloides, H. Schatzii.

Ilfeld.—Cynoglossum montanum, Ranunc. aconitifolius, Mentha crispata, Campanula Cervicaria, Chærophyllum hirsutum, Circæa alpina.

Ilsenburg and *Ilsenthal.*—Nymphæa alba. On the Ilsenstein, Arbutus Uva-Ursi, Lunaria rediviva, Hieracium Schmidtii, H. cymigerum, Ranunc. aconitifolius, Sphæroph. coralloides, Sticta glomulifera, Thelotrema lepadinum, Umbilicaria hirsuta, Erysimum hieracifolium, Andrea Rothii, Orthotrichum Hutchinsiæ, Pyrola minor, Evernia ochroleuca, Epipactis microphylla, Hypnum lucens, H. undulatum, Lecidea sanguinaria, L. abietina.

Ilsenthal.—Above Spiegelslust, Circæa alpina and intermedia; on the Ilse, while flowing down the Brocken, Polypodium alpestre, Rumex arifolius, Hookeria lucens, Fontinalis squarrosa, and other rare Cryptogams; on the ascent to the Brocken, Tetraphis repanda, Dicranum longifolium, Hypnum umbratum, H. Crista-castrensis, H. Starkii, H. pulchellum, Brachyodus trichodes, and numbers of interesting Jungermanniæ and Lichens.

Klusberg.—On the meadows below, Erythræa linariifolia, Gentiana Amarella; in the fields, Medicago denticulata, Papaver hybridum, Cannabis sativa, Ornithopus perpusillus.

Lauterberg.—Euphorbia amygdaloides, Alsine verna; above Scharzfeld, Helleborus viridis, Veronica montana, Ornithogalum nutans.

Michaelstein.—Dipsacus pilosus, Corydalis fabacea, Chærophyllum hirsutum, Potentilla Fragariastrum; in ponds, Cyperus fuscus; at Klostergrund, Lithospermum officinale, Leucojum vernum.

Neuwerk.—Myosotis sparsiflora, Arabis Halleri, Chær. hirsutum, Petasites albus, Campan. latifolia, Lysim. verticillata, Equisetum pratense.

Niedersachswerfen.—Biscutella lævigata, Arabis crantziana, Polygala amara *var.* insipida, Conringia alpina.

Oderbruck.—Imperatoria Ostruthium, Juncus filiformis. This neighbourhood is very rich in Cryptogams, of which may be mentioned, Bryum Ludwigii, B. annotinum, B. Wahlenbergii, Catharinea hercynica, Schistostega osmundacea, Amphiconium hercynicum, abundant, besides a host of rare Jungermanniæ and Lichens.

Osterode.—Arabis crantziana, Sesleria cærulea; on the Katzenstein, Ophrys apifera; on the fields, Caucalis grandiflora; on the Gypsbergen, very fine Cryptogams, Polypodium calcareum, Phascum flörkeanum, Anacalypta starkeana, Trichostomum rigidulum, Gymnostomum curvirostrum, Preissia commutata, Parmelia lentigera, P. fulgens, Barbula tortuosa, Lecidea decipiens, L. intermedia.

Quedlinburg.—On Langenberg, Andropogon Ischæmum, Scabiosa ochroleuca and canescens, Lycopsis pulla, Eryngium campestre; on the Bockshornschanze, Verbascum phœniceum and Salvia pratensis; on the Bode, Aster salignus, Salix mollissima; in Brühl, Hottonia palustris and Campanula latifolia.

Rehberger Graben.—List. cordata, Digitalis ambigua, Sonchus alpinus, Aconitum Lycoctonum, Ranunc. aconitifolius, Tetraphis repanda, Brachyodus trichodes.

Rennekenberg.—Epipogium Gmelini; in the neighbourhood of the "Viehhof," Splachnum tenue, abundant, besides other rare Cryptogams.

Sachsa.—Chrysanth. seget., Alsine tenuifolia, rare; Alectorolophus angustifolius in the thicket near the Sachsenstein.

Sachsenstein.—Arabis crantziana, Gypsophila repens, Hippocrepis comosa, Campan. bononiensis, Polygala amara *var.* fatua, Carex ornithopoda; in the marshes under the hill, Alsine ranunculoides.

Scharzfeld.—Helleb. viridis, Euphorbia amygdaloides, Asplenium viride, Struthiopteris germanica.

Selkethal.—Circæa alpina, C. intermedia, Dianthus Armeria, D. superbus, Aconitum variegatum (abundant), A. Cammarum (rare), Ranunc. aconit., Pyrola chlorantha, Ajuga pyramidalis, Omphalodes scorpioides, Platanthera chlorantha, Digitalis ambigua, Geranium lucidum, Vicia sylvatica, V. pisiformis, V. tenuifolia, Draba muralis, Campan. Cervicaria.

Spiegelsberg, near Halberstadt.—Carex clandestina, C. supina, C. Schreberi, Gagea minima.

Steinholz.—Adonis vernalis, Scabiosa ochroleuca, S. canescens, Salvia sylvestris, Gagea minima, G. saxatilis, Potentilla alba, P. opaca, Alyssum montanum, Coronilla varia, Astrag. hypoglottis, Lactuca guercina, Muscari comosum, Anthericum ramosum, Carex clandestina, C. ciliata, C. tomentosa, Dictamnus albus, Peucedanum officinale, Orobanche cærulea, O. elatior, Campan.

bononiensis, Achillea setacea, Pulmonaria angustifolia (azurea), Orchis sambucina, O. variegata, Scorzonera purpurea, Iris nudicaulis, Viola arenaria, Alsine viscosa; on the fields, Rapistrum perenne and rugosum, Inula germanica, Thalictrum minus, Lathyrus sativus, Lycopsis pulla.

Stempeda.—On the Altenstollberg in the Steigerthal, Pinguicula gypsophila, Carex ornithopoda, Verbascum Lychnitis, Polygala amara (v.), Arabis crantziana; on the hill, Astrantia major; up the Steigerthal, Rosa cinnamomea, Galium glaucum, Geran. sanguineum, Stachys recta, Aster Amellus, Gypsophila fastigiata, Helianthemum Fumana, Pyrus domestica, Hippocrepis comosa, Coronilla montana, Sauteria alpina, Fimbriaria umbonata, Preissia commutata, Lecidea decipiens and intermedia, Parmelia crassa and fulgens.

Treseburg.—Saxifraga cæspitosa (var.) Arabis Halleri, Dentaria bulbifera, Aspidium lobatum, Asplenium Breynii, Gymnost. tortile, rupestre (stelligerum), and curvirostrum, Encalypta ciliata, Lejeunia serpyllifolia, Preissia commutata, Lecidea lucida, Parmelia epanora.

Volkmarskeller.—On the banks of the stream below, Chær. hirsutum, Anthriscus alpestris, Aspidium lobatum, Hypenum alopecurum, Mnium stellare, and several species of Colbina.

Walkenried.—Helleborus dumetorum, Rubus saxatilis, Pyrola rotund., Polygala amara, Arabis crantziana.

Zorge.—Pyrethrum Parthenium, Agrimonia odorata.

Statistics of the Order CRUCIFERÆ, *with the Periodicity, Duration, Habitats, and Range of the British Species of this Order.*

(*Continued from page* 406.)

In this Order there are a few plants which do not reach the south of England, and which are not very scarce in the central or in the northern parts of our island. *Arabis petræa* reaches no further south than Carnarvonshire and Merionethshire; this is also the case with *Draba incana*. *D. rupestris* is almost local: its south limit is Perthshire and Morayshire. Two of these species, and perhaps the third, grow in the south of Europe; therefore it may be inferred that latitude is not the cause of their being limited to the northern or central parts of the island. Elevation appears to be a bar to their general distribution in England. In the south of England we have no mountains; and lofty mountains or a higher latitude seem necessary for the existence of these species.

The altitudinal range of some species of this Order has already been noticed, viz. that of the *Cochlearias,* which extend from the coast-line upwards to the summits of elevated mountains. These are both maritime and alpine plants, but their vertical range is not general: they fail in the intermediate spaces. *Draba incana* is found from the coast-level up to nearly 3500 feet above the sea, only in Scotland; but we have seen it in Wales (Merionethshire) not more than 200 yards or so above the coast-line. *Cardamine pratensis* and *C. hirsuta* have probably larger vertical and horizontal areas than any of our British plants. They ascend to upwards of 3000 feet in Scotland, and probably would attain as great an altitude here if there were any mountains of sufficient elevation, provided with a meadowy or boggy soil, in which they might grow. *Arabis petræa* descends to the altitude of 300 yards (see 'Cybele,' vol. i. p. 140), and in its vertical range is probably one of our most restricted plants; but it has a very considerable horizontal area. It might be expected *à priori* that the common Water-cress might have a larger vertical range than 200 yards even in England. We judge merely from its wide horizontal area, and its plentiful distribution where there is water. Will any of our Yorkshire correspondents enlighten us on this point? We should be inclined, from the same assumption, to assign a greater altitude to *Sisymbrium officinale* than is given by the learned author of the 'Cybele.' But we leave this to those who have the means of deciding the point. We have seen the plant in Aberdeenshire on as high ground as 200 yards above the coast-line. We believe the *Brassicas* generally, without identifying species or varieties, grow at an elevation nearly as high as that which the Wild Mustard (*Sinapis arvensis*) reaches, 300 yards at least. Both grow in cultivated places; and it may be assumed as a position not to be disputed, that wherever the Turnip or Rape is found in fields with other crops, it is only the remainder of the cultivated crop of the former year. Since the introduction of bone-dust and other artificial manures of no very great bulk nor weight, the cultivation of Turnip has been carried to a considerably greater elevation than formerly; and the growth of stray plants accidentally left in the ground is a circumstance of common occurrence.

The great bulk of the *Cruciferæ* has no very considerable extent of vertical range; yet we think it is, at least for the agrarial annuals of the Order, co-extensive with cultivation. We venture to assert that *Sinapis arvensis* and Shepherd's Purse, with probably *Sisymbrium thalianum,* will follow the footsteps of man, and establish themselves with better things in the tracts of land which he reclaims. *Thlaspi arvense* and *Lepidium campestre,* which reach to about three hundred yards, are probably limited, both horizontally and vertically, by certain idiosyncrasies of the plants themselves; in fine, it has been shown that some of the species of this large Order may be gathered in Britain at any season from the departure of winter to its return; also, that some of them grow everywhere,—in our streets, gardens, on our walls, roofs, in meadows and ponds, by the seashore and on the lofty mountain, in the hedge (not common), in the wood, and on the heathy common (*Teesdalia*). We have not seen any of them on heathy, moory, wet ground. Is *Cardamine pratensis* or *C. hirsuta* ever seen in such habitats? One of them, *Subularia aquatica,* grows under water in alpine lakes, as in North Wales and in other mountainous districts; but most of them are to be found in more accessible places than Highland lochs and crags are; and though many of them are very local, yet where they do grow they grow plentifully. Whether they be annual or perennial, wherever they establish themselves they are to be found in considerable *force,* as the geologists say of rocks that abound in certain formations. Is this peculiarity of the *Cruciferæ* owing to the oleaginous nature of their seeds? Are the seeds of these plants capable of resisting atmospheric influences a longer time than other seeds? and is this their tenacity of life attributable to their oleaginous properties? In this country we obtain all our vegetables (*par excellence*) from this Order. The Potato is scarcely considered as a vegetable, but rather as a substitute for bread. The almost infinite varieties of our Cabbages, Savoys, Cauliflowers, Brocoli, Brussels Sprouts, Curly Kail, Scotch Kale, and all the named and nameless varieties of Coleworts, with Sea Kale, are found in this Order. The stimulating condiments, Mustard, Horseradish, and various sorts of Cress, are obtained from species or varieties of the same extensive Family. Their antiscorbutic qualities are also well known. The Scurvy-grasses, *Cochlearias,* have the reputation of preventing or curing the terrible malady from which they have got their name. We should be obliged to our correspondents for information about the cultivation of this famous antiscorbutic plant. We believe that all the species are more or less possessed of such properties. They grow best in a nitrogenized soil, and to this character is probably owing their partiality to the vicinity of dwellings. When rapidly grown, their acridity is dispersed in the mucilage with which they abound, and they are then both succulent and agreeable esculents. We have seen fields near London dug up for the growth of Cabbages or Cauliflowers so full of half-decayed cow and horsedung that the odour of the soil was exceedingly offensive. (*Qy.* Are vegetables grown in such a compost healthy articles of food?) We know Cucumbers and Melons are grown on undecayed manure, but we have heard that they are not universally deemed salubrious. These questions are not without interest, especially in sanitary respects, and are deserving of more attention than they have hitherto obtained. I remember, when a youngster, that Turnips grown on undecomposed manure were considered rank, and not so palatable as those that grew on a more natural soil. We shall be obliged to our kind correspondents for their remarks, and the results of their observations, on these matters.

Botanical Tour in the Highlands of Perthshire; from Callander to Killin, by the Pass of Leny, Strathire, Balquhidder, Lochearn Head, Glen Ogle, and Glen Dochart.

(*Continued from page* 458.)

On the 10th of July,—a beautiful morning, but rather chilly, for there had been a sharp frost, not an unusual occurrence in these mountainous localities,—we started at four o'clock. The sun was already up, and shining on the head and shoulders of Ben Ledi, "that raised its ridge in air;" but the genial effects of solar heat were unfelt in the valley where we were, and the benumbing effects of the chilling, damp, frosty atmosphere were felt at our finger-ends. The great length of daylight, even at Edinburgh, was one of the phenomena not unobserved. In the beginning of July the light at nearly eleven o'clock in the evening was quite equal or greater than the light at nine P.M. in London.

The sun, after setting, is several degrees nearer the horizon in Scotland, than in the south of England. The sun's dip under the horizon is as much less in the Scottish capital, as the latitude of London is less than that of the former; or, in other terms, the difference of latitude will be the difference of the sun's horizontal depression in the two places respectively. But there is another minor cause of the excess of the twilight in Scotland above that of London, viz. the greater purity of the atmosphere. The causes of greater atmospheric purity are not so simple as the above-stated cause of long twilight; but the facts are well known.

The road lies along the left bank of the eastern branch of the Teith, by the little hamlet of Kilmahog, where the celebrated Pass of Leny commences. This Pass is formed by a spur of Ben Ledi on the west, and a similar spur of Benvoirlich on the east. The river rather rushes than runs through this defile. It forms a series of rapids, or a succession of abrupt falls, for the space of about a mile: where it issues from the lake it is as placid as the Loch itself. The road is a good one, as all the Highland roads are, thanks to General Wade, who made these good roads, or instructed the Highlanders in the art of road-making, an art in which they have ever since excelled. After emerging from the Pass, the lake, or at least the larger half of it, displays its loveliness to the traveller, who here has a grand view of the lofty Ben Ledi, from its base, washed by the lake, to its summit. On this side the elevation is abrupt and steep, and it is along this, the eastern side, that the road is made. The lake is bounded on the east by the long grassy slopes of the chain of Benvoirlich. Trees are rather scanty, especially on the Ben Ledi side of the Loch; but notwithstanding the somewhat bare aspect of the Loch, the scenery here is very admirable. It combines many of the elements of beauty and some of sublimity. The mighty mass of the chain of mountains on the west, and the extensive views on the east, partake of the latter character—the sublime; while the beautiful is well supported by the placidity of the unruffled surface of the fine lake reflecting the beams of the morning sun, by the quiet pastoral beauty of the Benvoirlich side, by the cottages and small farms, few and far between, and by the hanging woods that fringe the mountains at the upper end of the view. These, combined into one whole, formed a prospect not readily effaced from the recollection of those who had the pleasure of seeing it; especially when accompanied with other agreeables, such as good companionship, fine weather, the pleasure of past recollections, and the future anticipations.

After passing the bend of the lake, the road enters a dense forest of Pines, Oaks, Birches, Beeches, and other trees, which clothe the south-western brow of the huge Benvoirlich. Here the Loch contracts; and here we had the pleasure of collecting, or rather of beholding (for they are awkward species to collect, and burdensome to carry), both the White and Yellow Water-lilies, which ornament several parts of Loch Lubnaig. When in leaf *only* these two fine aquatics may be distinguished by the shapes of the foliage and by the position of the posterior lobes of their leaves. In the White Water-lily the leaf is rounded-ovate (egg-shaped), usually purplish below (on the under surface), the lobes at the base are almost parallel, and the leafstalk is cylindrical. The leaves of the Yellow Water-lily (the floating leaves) are ovate, rather pointed at the apex, and having the basal lobes slightly divergent; the petiole is rather angular than cylindrical, especially in the upper part.

During this morning's walk we had the pleasure of seeing *Saxifraga aizoides*, for the first time during this tour. It appeared in the bottoms and on the banks of all the little rills and brooklets that flowed downwards from the mountains into the rivers and lochs of the vales. This was an additional new feature to the roadside scenery. *Geranium sylvaticum* had been our constant attendant in all our walks about Callander, and the Lady's Mantle, *Alchemilla vulgaris*, ornamented every wayside. On the borders of Loch Lubnaig we were greeted by this other beauty, the Yellow Saxifrage, which cheered us on our way, as an earnest of the rich prizes that awaited us on reaching the culminating point of our journey.

The country here is solely pastoral and woodland. The mountain of Ben Ledi is far too steep for cultivation; and its base is but very thinly furnished with trees. On the Benvoirlich side there is much natural and plantation wood, both in the Pass of Leny and further on, on the brows overhanging the upper end of the lake. And the green mountain-side, sloping upwards from the road on the right, is quite open, and supplies pasturage to immense herds of cattle and flocks of sheep. Numerous rills and streams descend, crossing the road, and flow into the lake.

It was past six o'clock by the cottage chronometers, ere the poor village or hamlet of Strathire was reached; and our alimentary organs reminded us that we had not yet breakfasted. There are two public-houses here; but neither of them had a sufficiently inviting aspect to induce us to break our fast in them. So we walked on, two or three miles further, to the King's House, on the Braes of Balquhidder, and there rested and refreshed. This inn, which has been lately rebuilt and enlarged, was erected originally by General Wade. And as the military, or the King's servants, were the sole travellers needing refreshment on that road, it got the appropriate name of the King's house, because built at his expense and for the accommodation of his servants.

This inn is built near the summit of the Pass, a couple of miles from the church of Balquhidder, where, in the church-yard, the celebrated Rob Roy is buried. It is ten miles from Callander, four from Lochearn Head, and twelve from Killin. The views from this elevated station are much admired. Close at hand are the green Braes of Balquhidder, so celebrated in Scottish song, and not less deserving of celebrity for their excellent pastures and numerous herds of Highland stots and queys that graze thereon. The conical-peaked mountains of Ben An and Ben More were very remarkable objects in the direction of north-west. The views in the direction of Loch Lomond and Argyleshire are very extensive and grand. The road for a mile or two passes along a kind of table-land commanding very extensive prospects, and then the declivity to Lochearn Head begins, and the direction of the hills which bound Lochearn opens out, and the lake itself expands in all the quiet, secluded beauty of a Highland loch.

Lochearn is the apex of the fine fertile vale of Strathearn, one of the richest straths* in Scotland. There is not much fertility on the north-west end of the lake, where we were. The ground capable of bearing any profitable alimentary produce, is very limited—only a narrow fringe along the borders of the Loch and at the margin of the little stream that feeds it. The husbandry is not superior to the soil. Luxuriant specimens of vegetation we did not see, but we saw noble specimens of humanity. A brawny native, in full Highland costume, nobly displayed the physical qualities of the Celtic race. It is however more than doubtful if the *dominant* portion of the inhabitants of the Highlands be *Celts*. There may be some Celtic blood in their arteries and veins, as there is British blood mingling with the vital fluid in the circulatory system of the Sassenach of South Britain. But the Campbells, the Stewarts, the Grahams, the Murrays, the Menzies, and probably the heads of most of the powerful families in the Highlands, are of the Saxon race: originally *not* Celts at all, but who speak the Celtic language, wear the dress, and practise many of the customs of this ancient race. From these considerations it was inferred that the fine example of the *species* Highlander, we saw at Lochearn Head, was originally of the Saxon race. The genuine Highlander is a sparer man, with less muscular development, than his Saxon lord; he is also characterized by more agility of body, and by a more expressive and intellectual countenance. As our object was botanical, and not ethnological, these disquisitions are *tabooed*. *Retournons à nos moutons*: or, in plain English, let us "stick to our text."

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* The term *Strath* properly signifies a valley of considerable width and length through which a river flows; in modern phrase it is called a *river-basin*. It is said to be derived from the Celtic *Srath*, a country confined by hills and on both sides of a river. Strath may have some relation to the Latin *stratum*, whence is derived our word *street*, a way or thoroughfare; ways or roads being usually constructed along the banks of rivers. Strathmore, the great vale at the foot of the Grampians on the east, is a compound word signifying the Great Strath; *mor*, in Celtic, is great. *Glen* is a narrower vale. *Correi* is a very narrow ravine, but usually wide enough to afford a way up and across the mountains. *Correi* is from the same root as the Latin *curro*, 'I run,' either because water runs in it, or it may afford a space for walking on or climbing in, for it would in some cases be dangerous to run in Highland *Correis*.

We had been conversing with the postmaster of Lochearn Head about the common *Carvi* of Scotland (*Carum Carui*). This obliging official was assuring us that it did not grow wild in his vicinity (it was observed in his garden), and we were talking on the general subject of the wildness of species in general, when the gigantic Highlander above mentioned put an end to our discussion.

It is a widely-spread opinion that all cultivated plants, whether they be of a nutritious, medicinal, or other useful character, were originally wild; and, like all domestic or domesticated animals, did originally exist no otherwise than in a wild state, growing spontaneously and capable of self-propagation, without the agency or labour of man. The origin of this opinion is unknown to us, but we know that we *do not* hold it, because it is untenable, incapable of proof, and unphilosophical: we know the effects, but not the causes. We have food-producing plants as well as useful domestic animals, and we believe that they were created by God for the sustenance and the accommodation of man; and it is believed that no cause is assignable for their existence, but the creative wisdom of the Almighty and All-wise Creator. God gave man, on his creation, the seeds of herbs and the fruit of trees for his subsistence; He gave man a place wherein these food-bearing plants might be produced, with a charge "to keep and dress" the same. If our Cereal Grasses had had to be reclaimed from the wild species of *Triticum, Hordeum, Avena, Secale,* etc. (from the Wild Grasses of our hedges, woods, and fields), and our fruit-trees, from the Sloe and Crab-trees of our woods and hedges, the human race would have perished long ere these reclaimed species could have supplied them with necessary food. Let the supporters of this popular opinion experiment on the Wild Carrot and Wild Parsnip of our fields and waysides, and tell us how many years elapsed ere they had an edible Carrot or Parsnip from that source. We know that domesticated plants as well as domestic animals may be improved, yet their distinctive natural characters remain the same. It may be submitted that there is no evidence that domestic animals and cultivated plants ever existed, or could exist, without the aid of man. Cereal plants could not long exist unless the soil were kept clear of weeds; they would soon be choked by the myriads of hardier plants, which, in their turn, would be superseded by other forms of vegetation. Few garden flowers grow wild in a neglected garden. How long would the capercailzies and pheasants of our lowland woods, and the hares and rabbits of our hills, exist, if the vermin (the beasts and birds of prey) were not kept under by the establishments of game-keepers and trappers, which are everywhere maintained by the ownership of the soil and the protectors of the game? It is not to be gainsaid that wild plants (plants naturally wild) are transferred to gardens, and do become useful and ornamental objects of cultivation. But, on the other hand, it is firmly asserted that the vulgar notion that all our fine flowering plants were originally *wildings,* and that all our Cereal, Leguminiferous, and esculent plants, of whatever sort they be, were, at some remote period, only existent in a wild or natural state, is not only unsupported by any reliable evidence, but is *now incapable* of satisfactory proof.

We had now zigzagged about two-thirds of our way to Killin. Our way from Callander to the Braes of Balquhidder was in a nearly direct course north-west. Beyond this the road bends north-east to Lochearn Head. From this point our course up Glen Ogle to the summit of the Pass was north-west. When this was reached, our way again turned in a north-easterly direction to Lix, where the great road from Stirling to Fort William branches off to the left; and our course was then about north-east, following the line of Glen Dochart, which forms a continuation of the vale of Loch Tay.

On the roadside through the Pass of Glen Ogle, another acquisition was made: *Alchemilla alpina* was noticed here for the first time. On the table-land at the summit of the Pass we came upon a small alpine loch, of which the name has escaped us. Here, and in the brook which issues from the said lake and flows into the Dochart, we looked for alpine aquatics, but without success.

The Pass of Glen Ogle is remarkable only for its great extent. It contains of course a brook or stream, one of the never-failing characters of a Highland pass. The vegetation and the general aspect of the surface are in perfect keeping with the desolation and sterility of the whole scene. At the Lochearn end of the Pass there are a few fields, and the brook is fringed with some green meadows and *inches;* but long ere the summit is reached brown Heath and barren rocks are almost the sole produce of this vast wilderness. Our road, by a very steep declivity, descended into Glen Dochart, which we entered at Lix toll-bar, where the Fort William road goes up the Glen to the west, and the Killin road down by the river-side to Loch Tay. On the banks of the Dochart, a large and rapid river, the road leads the traveller to Killin, which is only between two and three miles distant from Lix. *Carduus heterophyllus,* a beautiful object, with leaves at least a foot long, and large purple blossoms, ornamented the banks of this beautiful river. *Galium boreale, Geranium sylvaticum, Petasites vulgaris, Valeriana officinalis, Geum rivale,* and many other more common species, abounded by the waysides; and our never-failing companion, the Yellow Saxifrage, fringed the little mossy banks, and carpeted the bottoms of all the rills and brooklets that trickled or trotted down from the heathy, hilly wastes on our right. Killin, the extent of our journey for this day, was reached about two o'clock.

After refreshment and rest we went out and surveyed the picturesque situation, and the grand surrounding scenery of Killin. This place, justly celebrated by all tourists, is built on both sides of the Dochart, which, at this village, has a considerable resemblance to the Dee at Llangollen, in North Wales. Here the river passes over a series of ledges of rock, and just under the bridge there is a considerable fall and rapid. Here the river encloses the burial-place of the Lairds of Macnab, a clan once celebrated about Killin, but who are all now located in Upper Canada, where the representative of the family has been of late years conspicuous for his loyalty and patriotism. Their ancient patrimony about Killin, Kinnell, Auchmore, and Acharn, has contributed to augment the immense possessions of the Marquis of Breadalbane, who is now lord paramount round Loch Tay.

Killin occupies the spit of land between the rivers Dochart and Lochay, which bound it on the south and north, and between the lofty hill Shroineach Lochan on the west, and the two rivers, which unite before entering the lake, on the east. The hill immediately above the village on the west is clothed with a dense wood, which reaches nearly to its summit on the eastern side; and the woods of Finlarig and Auchmore clothe the bases of the hills which skirt Loch Tay on both sides of this its upper end. The grand chain of the mountains of which Ben Lawers is *facile princeps,* the most eminent, bounds the left or north-eastern bank of Loch Tay; the mountain-range on the opposite or south-eastern side is represented by Ben Chonzie. The distance from the bridge of Dochart on the south to the bridge of Lochay on the north is about a mile; and this is the extent of the village, which is rather open, for in this space there are several places where there are no houses.

On a meadowy margin of the river Dochart, before it receives the Lochay, *Plantago maritima* was observed in considerable quantity, also *Polygonum viviparum,* the latter very luxuriant. On the mountains this plant is plentiful, but generally very small, seldom exceeding a few inches in height; here it was between one and two feet high, and leafy in proportion, with a very long spike. By the side of the stream *Geranium pratense* was also observed for the first time. This fine plant we subsequently found in abundance in Glen Lochay.

Our first expedition from Killin was up the left side of the river Dochart for a mile or two; and here we thought we detected *Alisma natans,* neither in flower nor in fruit: hence this point must be regarded as uncertain. If it was this plant, it was the only interesting alpine aquatic observed in our Highland tour. From the bank of the river we ascended the very steep hill of Shroineach Lochan, but noticed scarcely anything which we had not previously observed. On the high rocks grew in luxuriant patches *Epilobium angustifolium,* which had not yet (the 11th of July) expanded its bright purple blossoms. A fine object it is, on these alpine craigs, when it is in full flower, which is about a month later than the period when we observed it here.

The views from the summit of this mountain were very extensive, embracing the greater portion of Loch Tay, its bounding mountain-chains, Glens Dochart and Lochay, Ben More, and the far more distant hills of Athol and of the West Highlands. The descent from the summit was not easily accomplished, nor without some slight injury to our muscles. The road—for there is a cart-road leading over the mountain to the peat-moss—is a zigzag, like that at Clifton, *magna componere parvis.* The English zigzag has the advantage in breadth and smoothness, but its Scottish rival excels in extent. The distance from the table-land to the summit of Clifton high rocks may be about 300 feet: to the summit of Shroineach Lochan the altitude is probably nearly ten times as much.

The distance from the summit of this hill to the village of Killin is probably a mile, but as steep as the ascent to Twll-du in Carnarvonshire. The zigzag road is at least three times as long, and not remarkable for the equality of its surface. The zigzag road from the summit of Clifton Downs is wide and level; a coach-and-six may be driven on it with safety. The zigzag road near Killin is narrow, rutty, and rough. The hill is worth ascending, for the sake of the ample view obtained from its top. The botanist need not trouble himself with a vasculum, for it is not a rich botanical locality.

On the 13th, Boreland Falls, on the Lochay, about two miles from Killin, were visited. Along the roadside which leads up the Glen several examples of *Geranium pratense* were observed, and *G. sylvaticum* did not occur so frequently nor so abundantly as it had heretofore. A very large and old stock of *Ribes rubrum* was also noticed. During the whole course of our walks through the parts of Perthshire already visited, or which we subsequently visited, no *Ribes* occurred so frequently and in so considerable quantities as *R. Grossularia.* This species, as a British plant, is ignored by most botanists. Judging however from what we saw, it is very much more common than any British species of the genus. *Ribes rubrum* and its varieties are occasionally met in upland woods; but *R. Grossularia* was nearly, but not quite, so common as *Rubus idæus,* the common Raspberry, and in Scotland this plant is as plentiful as blackberries are in England.

After visiting the Falls and emerging from the plantation in which they are, we rejoined the road, and walked along it as far as the open pastures, a mile or so beyond the Falls. Here we diverged to the right, up the sloping side of Craig Chaillach, which bounds one side of Glen Lochay, as Shroineach Lochan bounds the other; and we kept ascending till we were probably about a thousand feet above the bed of the river. In marshy places at this altitude plenty of *Tofieldia palustris* was growing,—a new acquisition, which gave us much pleasure.

Our nearest way home led us through a very dense and steep pine-wood, in which we indulged ourselves with the vain hope of collecting *Linnæa borealis,* which does grow in fir-woods, or rather in *a* fir wood, at Finlarig. A soaking rain however soon compelled us to abandon all our expectations, and we reached home in a non-enviable plight. Woe betide the imprudent wight who ventures into the Highlands without a good supply of warm clothing, considerably more than he can comfortably wear at one time! The trouble, and eke the expense, of conveying an important part of the contents of an ordinary wardrobe, are no slight impediments to travelling. Anciently, in military phrase, these and other necessaries were called, and properly called, *impediments (impedimenta),* because they hindered or impeded the movements of the army. But the comfort of dry and warm clothing, a change of raiment from the feet up to the head, from the *subecula,* the innermost *tegument,* to the *tunica,* the outermost, is cheaply purchased at the cost of a few shillings. Some pedestrians are seen *there* with their well-assorted packs, which are conveniently and comfortably disposed between their shoulders; and these trudge along as independently as if their baggage was no impediment to them, but a part of themselves. Pedestrians however who have seen sixty summers can rarely spare so much corporeal strength as is requisite for burden-carrying, and therefore are fain to ease their backs and shoulders at the expense of their pockets. During our three or four weeks' tour in the Highlands we were often wet, sometimes soaked through; yet we never suffered perceptibly from colds and rheumatism, which often follow these involuntary applications of the hydropathic system. If the tourist have no change of clothes, or only an inadequate change (which is next-door to none at all), let him take our advice, which is, to go to bed, and there remain till all his things are completely dry. If the weather clears up, one may walk in his wet toggery till quite dry, without any risk. But sitting in wet clothes, either with or without a fire, is fraught with peril to the health of the tourist.

The 13th was Sunday, and we rested and attended divine service in the churches of Killin.

We spent three Sundays in Scotland, not in populous towns, but in large country villages, and remarked that this holyday was uniformly observed with great solemnity. People accustomed to the more imposing ecclesiastical observances and usages of other countries might find the services of divine worship in this country rather meagre, abrupt, and conducted with perhaps too little reverence. No one can complain of breaches of the fourth commandment in Scotland. The *day* is reverenced: all work is suspended, and all the proprieties are strictly observed. Most of the people attended service in one or other of the churches. It was very interesting to see the small companies, all well attired, coming down the glens to church. Many came from a great distance. The parish of Killin is about thirty miles long, and from eight to ten miles wide, consequently some are nine or ten miles distant from their place of worship. There are two services in the middle of the day, without any interval. The first is in English, the second in Gaelic. The latter is the language of poetry as well as of religion, and it is deeply rooted in the affections of the people. A large proportion of the people understand English, and they come to the first service. The exclusively Gaelic people, or those who know both languages, attend the second service. In the afternoon all return home as devoutly as they assembled. It is rare to see people idling about the streets or in the fields, or to notice children playing, on the Lord's day. In the remote parts of Scotland, Sunday is strictly a Sabbath, a day of total cessation of labour. How they employ the day withindoors, we venerate the sanctity of the domestic hearth too highly to venture to surmise. It may be said, and truly, that the public solemnities of the day were reverentially kept; and further, that there were no external indications of what might be justly deemed inconsistent with these strict religious observances. The term *Sabbath* is as common here as that of *Sunday* is in England. To the majority of the people it is a Sabbath, a day of rest. To the majority of the English it is a *Sunday*, a pleasure-holiday.

In populous places in England thousands and tens of thousands seek recreation in the country, to which access is now easy by railways and navigable rivers. Probably an equal number stay at home, to cook and eat a hot, heavy dinner. And many of the latter class spend their afternoons and evenings in the public-houses; not a few of them unwashed, unshaved, and unshifted. Probably our Scottish neighbours are over-strict in their religious observances, and probably we are too lax. It may be observed that neither they nor we ourselves apply the proper term to this sacred day, for sacred it is: its sacred character is sanctioned and established both by the laws of the Church and the laws of the land. Yet it is not the *Sabbath*, which is still observed by our Jewish brethren, and which is equivalent to our Saturday: its proper Christian name is *the Lord's day*. *Sunday* is its heathen name, the name by which it was known before the introduction of Christianity. It is to be feared that, as its proper name is now disused both by the Sabbatarians and by their antagonists, so its proper nature and purpose are also misapprehended. *Sed non nostrum est tantas componere lites:* "we will not judge between the contending parties."

BOTANICAL NOTES, NOTICES, AND QUERIES.

Names of Plants derived from the substances they produce, or the purposes to which they are applicable.

VISCUM.—Because, from this plant, either from the berries or from the bark, birdlime was and probably is manufactured; hence the old and homely proverb, "Turdus malum sibi cacat:" or, as we commonly say, "The fool cuts a rod for his own back;" and the Scotch, "He pu's (pulls) a wand to ding (beat) himsell."

Taxus, Yew.—The branches of the Yew, being long and slender, pliable and elastic, with considerable bearing strength, were anciently used in the making of the implement which the Greeks called *τοξον, a bow.*

Sambucus.—From Greek *sambuke* (*σαμβυκη*), the name of a musical instrument made of the wood of this tree. Its long, straight, hollow branches, from which the pith is easily removed, are easily formed into various kinds of wind musical instruments.

Spartium.—From *spartum*, *σπαρτος*, *cordage*, for which some of the species are still employed, especially in Spain and Portugal. Both the generic and specific names of one of these plants point out the uses for which it is employed, viz. *Spartium junceum.* The latter or specific name is from *Juncus*, *a Rush*, from *jungo*, *I bind*, because many of the Rushes were used for binding; as we have seen drawing-ropes, traces, and other horse- and ox-gear, prepared from the rind of several kinds of Rushes.

Spiræa.—From *speira* (*σπειρα*), *a cord;* the pliant twigs of some of the species were anciently twisted into cordage.

Viburnum.—From *vieo*, *I bind;* for which purpose the tough, slender twigs are very applicable.

Buxus.—The ancient Greeks made small boxes called *πυξιδες* (*πυξις*) from the wood of this tree. The Latins employed the wood of the tree for the same purposes; and the moderns manufacture snuff-boxes and similar fancy articles from the roots and stems of this tree; hence our English term *boxwood.*

Violets.—This term, which is well understood by the scientific, must be very puzzling to the unlearned reader of botanical books. Botanists restrict the name *Violet*,—in Latin *Viola*, and in Greek Ιον,—to plants of the natural Order Violaceæ, and to the genus *Viola.* The non-botanical reader applies this name *only* to the *Sweet Violet*, *Viola odorata* or *V. alba* of botanists. The *Dog Violet*, because it has no scent, is called the *False Violet.* The sweet scent is the sole character by which the unlettered distinguish the genuine violet, whether dark purple or white. By English writers on plants the generic word *Violet* is applied to many plants, of very distinct and widely separated orders and genera, as well as species. The *Sweet*, the *Marsh*, the *Hairy*, the *Dog Violet*, and many other less common epithets, which the necessities of science authorize or justify, all belong to the genuine *Violet* and to its various and different congeners. But there are other applications of the word *Violet* which are still more perplexing to the untutored mind. The following are *Violets*, viz. *Hesperis matronalis*, the Dame's (our Lady's) Violet. The "*pallentes violas*" of Virgil, Ec. ii. v. 47, were probably another species of this genus, viz. *Hesperis tristis*, the *Night-stock*, a very popular plant, still highly prized for its exquisite odour, which it only yields in the evening and during the night. Among the Greeks the word Ιον is equally indefinite as the word Violet is among us; for example, Ιον λευκον is said to be the *Leucojum æstivum* and *L. autumnale*, L., our *Summer and Autumn Snowflake.* Ιον κροκεον, *Viola flava*, Theoph., is our common *Wallflower*, *Cheiranthus Cheiri*, Lin.

The *Tusculan* and *marine violets* of Pliny (Bk. xxi. c. 14, Bohn's ed.) are supposed to be plants of the natural Order *Cruciferæ;* and in this sense alone can the introductory lines to this, the 14th chapter, be understood. Pliny says: "Of this (the violet) there are several varieties, the purple, the yellow, and the white, all of them reproduced from plants like the cabbage." We all know how the cabbage is reproduced,—first, from seed sown in a seed-bed; secondly, from the seedling plants transplanted or placed in ground where they are to remain till ready for use. Stocks, Wallflowers, and other Cruciferous flowers, are reproduced after the same manner as was practised in Pliny's time, nearly 2000 years ago. But genuine Violets are the natural production of most places where they abound, or, if transferred to the garden, a waste shady spot is selected for them, a spot which would be unsuitable for cabbages and stocks. We have also the *Corn Violet*, the *Specularia hybrida* of modern botanists; also the *Calathian Violet*, *Gentiana Pneumonanthe*. The former belongs to the natural Order *Campanulaceæ*, and the latter to the Order *Gentianeæ*. There is still another violet mentioned by English authors, viz. *the Water Violet*, *Hottonia palustris;* this belongs to the natural Order *Primulaceæ*. *Erythronium Dens-canis* is the last we will mention. This plant, which in English is called the Dog's-tooth Violet, is not only of another Order, but it is of another Class: it is a Monocotyledonous Order. We have Violets in six orders, nine genera, and distributed among a great number of species. Some of these are eminently distinguished by their strong odoriferous smell; some have no perceptible smell at all. The etymologies of the term are various. Hermolaus says "that the Ionian nymphs first offered this flower to Jupiter." Which of the violets did the nymphs offer? Others, that the earth first produced this plant (which?) as fodder for Jupiter's favourite mistress *Io*, after she was transformed into a cow. The doctors differ: who shall decide? I. A.

P. O. will be glad to receive the following plants:—*Gentiana nivalis*, *Saxifraga Hirculus*, *S. cernua*, *S. rivularis*, *S. hypnoides*, *Pyrola uniflora;* directed to the care of Mr. A. Irvine, 28, Upper Manor Street, Chelsea, near London. The real address, and list of plants to be given in exchange, can then be had.

We have much pleasure in giving publicity to the following notice, received from a fair Correspondent. "It is respectfully requested that all Botanists who are desirous of effecting exchanges of the British Land Plants, Algæ, etc., by means of correspondence with others, will give their names and addresses to the Editor of the 'Phytologist,' for insertion."

Communications have been received from

Rev. H. A. Stowell; M. C. C.; Rev. T. F. Ravenshaw; I. P.; William Cheshire; J. G. Baker; C. Barton; Rev. W. M. Hind; E. Hodgson; John Windsor, F.L.S.; P. O.; J. S. Mill; J. Hardy; Rev. W. A. Leighton.

ERRATA.

Page 459, last line, "Aldes Scar," should be "Awes Scar." In the last paragraph, respecting *H. tridentatum* or *rigidum*, instead of "It is plentiful at Lymm and Purlington," *read* "It is found sparingly at Partington, more plentifully at Lymm, and also about Withington, Timperley, etc., near Manchester." Also, in October Number, p. 454, line 24, *for* While on the north *and* middle air, *read* While on the north, *in* middle air.

Notes from the Journal of an Irish Lady.

On the 25th of July, in the present year, a small party of us sallied forth, provided with baskets and vasculums, with the hope of adding to our collection, in a district we had not yet explored; the grand object of our search being *Lastrea Oreopteris,* said to be so "plentiful in Ireland." The country about the town of Galway is of a singular kind: there are numerous fields of flat rocks, which are frequently mingled with high, rounded ones; Furze, Heath, and plots of Grass grow around, where cows are turned out to graze, and where I am told they can pick many a sweet bit of herbage, and to our dismay, as we found many a fine specimen of *Botrychium Lunaria* also, if we might judge of the bitten parts left. One very large field we found full of rocks, with deep fissures, in which *Rubia peregrina* grew abundantly; *Asplenium Adiantum-nigrum,* sparingly; *Ceterach officinarum,* in considerable quantity; and *Dryas octopetala* dotted the grassy part of the surface with its lovely white blossoms: it seemed a strange locality for a subalpine plant. We afterwards took the road along Taylor's Hill, commanding a good view of the Bay of Galway, which is bounded on the opposite side by hills of the county of Clare, where Sir Charles Giesecke expressed his surprise, some years after his return from Greenland, to find a flower of the *Ledum palustre* in the buttonhole of the coat of a peasant whom he met in a wild part of that county, and who pointed out where he had plucked it. Far in the distance stretched out the Isles of Arran, the Irish abode of that most graceful Fern *Adiantum Capillus-Veneris,* also of the rare plants *Matthiola sinuata,* or Great Sea-Stock, and of *Brassica monensis,* or Isle of Man Cabbage. To the left lay the "City of the Tribes;" the old Spanish houses of it form an object of much interest to travellers, and in one of which resided the celebrated Warden of Galway, an inhuman parent, who with his own hands put his son to death for a political offence. The fields we wished to cross were separated by walls composed (Galway fashion) of piles of stones heaped one upon another, without the aid of mortar; which added greatly to our convenience, as we had only to knock down the walls to cross over them comfortably, and rebuild them when on the other side. We came to a clear stream, where we gathered *Osmunda regalis,* and saw some splendid plants of *Athy-*

rium Filix-fœmina, var. *convexum*. We spied some *Blechnum boreale* on the other side, so large that we determined to ford the stream. As we were debating about the best place to cross, a cow, attended by her calf, as if in scorn of our counsels, dashed across the stream in fine style,—at the worst only wetting herself with clean water. Had some of us but followed her example, we should have been better off, and not have floundered as we did into a heap of boggy mud. However we went gaily on, to a field, where we rested, and pulled *Scutellaria minor, Hypericum pulchrum, H. elodes*, and the rarer *H. humifusum*. The large purple bells of our Irish Heath, *Menziesia polifolia*, appeared in profusion. At the exclamation of one of our party from a swamp of "a new Butterwort!" I went towards her, and recognized a Connemara acquaintance in *Pinguicula lusitanica*, in company with *Drosera longifolia*, which was not in flower, though very welcome to us all, and quite made amends for our fruitless search for *Lastrea Oreopteris*.

Galway, August 7th, 1856.

On the Genus Rubus. *By* Joseph Woods, F.L.S.

(*Continued from page* 446.)

From the forms of the plant and its mode of growth, we may pass on to what are called its arms. And first, of the prickles. These are conical, on an elongated base, curved or inclined downwards, sometimes nearly horizontal, but never inclined upwards, unless where the plant is preparing for itself a new root, and varying much in size, in robustness, and in frequency. They are sometimes confined, or nearly confined, to the angles of the stem, and in that case are all usually nearly equal, or, if accompanied by a few aciculi, there is no gradual passage from one to the other. Sometimes they are scattered over the surface, nearly equal or unequal, passing or not passing into aciculi. In any of these cases they may or may not be accompanied by setæ, *i.e.* by something stronger than hairs, but which yet cannot be called prickles, and each tipped, when young, by a small gland. The aciculi differ from setæ in having no gland, and their base is in a slight degree longitudinally expanded, but not in the manner in which it shows itself in the aculei. There is however no very distinct line to separate the aculei and aciculi. In some *Rubi* we find very small prickles, proportionally as much expanded at the base as the larger ones: these I should not call aciculi. For the most part the prickles of the flowering-branches are smaller than those of the barren shoot. The stems are also often free from prickles; but sometimes these organs extend into the panicle, and are even very stout and large on the flower-stalks and calyx, much stronger even than on the other parts of the plant, in proportion to the solidity of the parts on which they grow: those on the leafstalk are usually more hooked and proportionally larger than those on the stem, and these extend more or less on the midribs of the leafits.

Besides prickles, aciculi, and setæ, we find on some Brambles a few sessile glands; but these seem rather to occur accidentally in many species than to form a peculiarity in one, and no use of them has been made in forming specific characters; they are rarely even mentioned in the more detailed descriptions.

The hairs on the stem are of two sorts. In some plants they are short, stellate, nearly adpressed to the stem, and forming to it a close greyish covering. In others they are longer, single, and spreading, often horizontally. This latter sort seems more variable than the other, but they are neither of them so constant as to be depended on as marks of species. We sometimes find both on the same stem. The sepals are usually covered with hairs of the first sort.

On the leaves we find the same difference in the disposition of the hairs,—a very close, stellate, penicillate, or at least entangled pubescence of very fine hairs, and larger and spreading hairs. In *R. tomentosus* the former is observable on the upper side of the leaf, forming an even, grey covering, but in general the upper side of the leaf in Brambles has only a few scattered hairs along the midribs and primary veins, and no general covering. On the other hand, the under side is, I believe, always hairy. The shorter hairs occur in some species, and not in others; sometimes showing the under side of the leaf as quite white, sometimes as grey, and sometimes as pale green. This difference depends partly on the covering over the greenish surface of the leaf being more or less dense, but partly, I believe, on the colour of the hairs themselves. The longer hairs are hardly ever entirely wanting. They rise from the ribs and veins, rarely from the surface of the leaf, and are stronger in each individual leaf as the parts from which they rise are stronger. In some species, where they are strong and long, they have a glittering appearance, not entirely unconnected with their size, but resting, I think, partly on the nature of the hairs themselves, and varying much in the degree in which they reflect the light. Sometimes the long hairs on the midrib and primary veins alone have this shining appearance; at others, it seems to extend to those on the smallest veins; and now and then we find long and entangled hairs, with something of this appearance, spreading over the surface.

It appears, from what has been said, that the botanist is obliged to refer to every part of the Bramble, except the root, in order to obtain a correct idea of any one species. In some genera we find a peculiarity in one species, or one common to several species, which characteristic can be depended on as deciding the place which the species or group ought to occupy. Among the Brambles no character is absolute, but is to be taken in conjunction with other characters, and each character varies in degree and in importance, and is sometimes to be disregarded. If we denote the characters by the letters of the alphabet, we may say of a species that it offers to us *a, b, c, d, e,* another species wants *a,* a second *b,* and so on, each possessing at the same time some further marks of distinction; but we shall obtain a very imperfect idea of what the botanist has to do in settling the species of *Rubi,* unless we bear in mind that a plant may exhibit a little of the character *a,* but not enough to influence our determination of the species; that another may possess much of the character *b,* but so overborne by other characters that we are forced to neglect it.

To draw some practical consequences from the foregoing observations. I should recommend the student first to attend to the panicle. In that however, as in other parts of the plants, he must take care to have a well-developed specimen, and not content himself with an imperfect one, for the sake of saving room in the herbarium. If this be a broad raceme, terminating abruptly, each stalk (except possibly one or two at the base, and almost detached from the rest of the panicle) supporting not a knot, but single flower, it will go to his first group. This group is moreover characterized by a stem, not rooting (of this he should make a note at the time of gathering the specimen), armed with few and rather small prickles, and the fruit consisting of numerous small acini. If it should be deficient in some of the latter characters, the student must place it among these doubtful intermediate species which I am afraid he must unavoidably admit into his collection while studying this intricate genus. His second observation may be directed to the calyx of the fruit, reflected or closing on the acini. If the first be the case, he may find it expedient again to refer to the panicle, always branched, but the flowers in some cases united into knots, while in others the ultimate stalks are almost always long and slender. I know however but two species exhibiting this character,—*R. tomentosus* and *R. fruticosus* of 'Rubi Germanici,'—and I have no evidence that either of these have been found in Britain. The more common arrangement is that where they are united into knots, more or less perfectly developed, and sometimes compound. We find sometimes a taper raceme or a panicle ending in such a raceme; and in figures or in the specimens of a herbarium this may seem a valuable character, but I suspect it to vary even in the individual.

Having disposed of these the student will proceed to divide his remaining plants of this section into four groups. The first, marked by having quinate leaves, with the outer leafits sessile, and all of them broad at the base and consequently overlapping. The second, by five, in some degree separated, leafits, and by nearly equal prickles. The third, by similar leafits and prickles passing into aciculi and setæ; and the fourth by having usually only three leafits.

Thus, then, we find the plants of this part of the genus *Rubus* divided into seven groups.—

- Raceme nearly simple, short and abrupt, forming . . . . Group 1
- Panicle branched.
  - Calyx of fruit reflected.
    - Flowers not collected into knots. Stalks long and slender . 2
    - Flowers collected into knots.
      - Leafits 5.
        - Outer leafits sessile; all broad at the base 3
        - Leafits separate, all stalked.
          - Prickles nearly equal 4
          - Prickles passing into aciculi and setæ 5
      - Leafits 3 6
  - Calyx embracing the fruit 7

The student will however often meet with plants which he cannot refer with confidence to any of these;—these he must rank in suborbinate groups, noting their nearest affinities, and when he has thus formed a series, a matter accomplished without difficulty in almost any locality, let him proceed carefully through his collection, correcting, by comparing one with another, the names which he may have given to each as he collected them. The next thing, if he have the opportunity, is to show his plants to some skilful Batologist; but to whomsoever he may apply, let him be sure of one thing, that his adviser will point out a great many mistakes. Let him not be discouraged at this. He will well consider the comments made upon his plants; but let him not blindly follow the opinions of his censor, for he may be certain that if he were to adopt the names proposed and then expose his collection to the criticisms of another equally skilful botanist, he will still find many names condemned as erroneous.

Are Viola odorata *and* V. hirta *Distinct Species?*

At the present time there seems too great a desire among some good botanists to depreciate the value of the present specific distinctions among our native plants. I am induced to make a few remarks on the subject, as I do not consider the experiment a fair one towards the determination of a species, that takes a plant from its native locality,—*Viola hirta* for instance, the habitat of which is most frequently a heavy, cold, barren-looking limestone soil,—to a garden, and there cultivates it in a loose, rich, loamy soil, in a bed it shares with a few other favoured flowers, all weeds being kept carefully away. Almost any plant will change its appearance with this treatment; the cabbage of the sea-shore is the same species as the cabbage of the garden, or rather was the parent of the cultivated varieties. What has caused the alteration in the appearance of the two plants, or rather one plant from two localities? What has changed the leaf, twice as long as broad, of *Brassica oleracea,* to the leaf of the garden Cabbage, frequently broader than long? Cultivation, must be the answer. If the changes produced in plants which are removed from a poor to a richer soil than they have been used to is to degrade them from species to varieties, how very few real species we have! "So well do botanists know the effects of such changes of circumstances, that they are averse to describe species from garden specimens, unless they are sure they have been cultivated for a very short period" (Lyall's 'Principles of Geology'). Now, botanists not only take a plant that has been cultivated, but cultivate it still more, to arrive at the abstract idea of a species: if this be a correct method, the result must be that most of our present *species* are *varieties*, and many of our *genera* are only *species*,—as *Rosa, Rubus, Salix, Mentha,* etc.

The experiment is perfectly fair in the case of trying to cultivate *Triticum sativum* from *Ægilops ovata:* it is an attempt to prove what changes may be induced *by* cultivation. But there is a great difference between this and trying to find out which plants are really species. In the one case you wish to see what difference a certain change of diet and air will produce on the plant; in the other you want to prove its capability of freely producing seed and retaining its original appearance, not whether it will grow on all soils and under all circumstances, and still keep the same unvarying form. Will any (herbaceous) plant do so?

Would it not be possible to interest some of our landed proprietors in the matter, and get him to lend the waste places on his estate for a few years, for the purpose of trying the critical plants on? Surely more than one or two botanists might be found, who would devote their attention to it as far as the observing and collecting are concerned. They might grow, say the *species Babingtonianæ* of *Rubus,* in their natural places as near as possible; that is, those that grew in the hard wayside soil to have seeds taken from them and planted in the same soils, either at the same place or elsewhere; but, if elsewhere, taking care that the exposure, moisture, etc., be the same as where the plant grew. Those of the woods, grow in the woods; those of the field, in the field; from the same plant take seeds and plant in the usual Botanic Garden manner, *i.e.* small beds kept free from weeds and few plants on them. Thus I think alterations produced by change of soil might be observed collaterally with those of the native habitat, and a correct judgment arrived at. I have only taken the *Rubi* as an illustration; of course all the critical plants might be observed in the same manner.

The more immediate cause of writing this is Mr. J. G. Baker's Paper on *Viola hirta* and *V. odorata,* in 'Phytologist,' August,

1855. I may perhaps be considered presumptuous in wishing to correct so good an authority, but cannot subscribe to his opinion about the two plants. I have never found any difficulty in distinguishing them one from the other even in a dry state; closely as they approximate at times, I have always found one of the diagnostics in Babington's 'Manual' (third edition) constant, however much they may vary in other respects. He has in *V. hirta* "petioles with spreading hairs," and in *V. odorata* "petioles with deflexed hairs." We see the pubescence allowed to form a distinction in *Fragaria* and *Myosotis,* why not also in *Viola,* if the character be constant?

I have enclosed specimens of different ages and from various localities, that you may see the plants on which I have formed my opinion, having been engaged last spring in trying without success to find some of the intermediate forms in which the characters are so "awkwardly mixed up together;" my impression being, that all the scented Violets, whatever the colour or however faint the smell, will have the broadish leaves and deflexed or adpressed pubescence of *V. odorata,* and ought to be referred to it. The variation in colour is sometimes very great on our lias soils; whilst other seasons, as the past (1856), there is scarcely a lavender, lilac, or white one to be found. I have seen the blue and highly scented *V. odorata,* removed from its native habitat when in flower and planted in the shady part of a garden, flowering the next two seasons with white and nearly scentless flowers, without the form of the leaf or the pubescence changing in the least; and if *hirta* be not distinct as a species from *odorata,* what is the cause of the one plant being so very different in appearance to the other at the most important period of its existence, even when growing side by side with it? At page 70 of your Descriptive Botany you observe, "We never remember seeing the two species or varieties together." I have many times seen them growing in company, as you will see by the specimens, but never any truly intermediate forms with them, and have always considered *V. odorata* very variable, but *V. hirta* constant to its characters.

The most conspicuous and constant differential character I have seen between the two plants is, that in *V. hirta* the whole plant at the time of flowering is a rosette of small, narrowish leaves, with many flowers overtopping them, the leaves and leafstalks afterwards elongating and enlarging considerably; in *V. odorata* the leaves arise some little time before the flowers, which are about the same height or shorter, so as frequently to be hidden by the leaves.

I have appended in a tabular form the characteristics of the two plants as I see them.

Viola hirta.	*Viola odorata.*
Inodorous.	Odorous.
Leaves shorter than the flowers at the time of flowering, generally one-half longer than broad.	Leaves as long as the flowers at the time of flowering, generally as broad as long.
Hairs of the petioles and peduncles spreading.	Hairs of the petioles and peduncles deflexed or adpressed.
Sepals ciliate, hairy on the surface.	Sepals membranaceous at the edge, glabrous on the surface.

September, 1856.

W. CHESHIRE.

On the Hieracia *of North Yorkshire and Teesdale. By* JOHN G. BAKER.

(*Continued from page* 323.)

Series 3. (Accipitrina, *Fries.*)—Mode of propagation by closed buds. Stems leafy. Achænia moderate in size. Rays of the pappus arranged in two obscure rows.

H. strictum, Fries, has been reported from the neighbourhood of Bolton, in Wensleydale, apparently by mistake for Grizedale, in Westmoreland. *H. prenanthoides*, Vill., grows in the woods at Hackfall, on the south side of the Yore, which, during that part of its course, divides the North from the West Riding.

9. *H. tridentatum*, Fries, Nov. 1819, p. 187.—*H. rigidum*, Hartm. in part.—Stem one to three feet high, leafy, rigid or flexuose, slightly hairy, paniculato-corymbose above. Leaves more or less numerous, with a few teeth on each side about the middle; lower ovate-lanceolate, slightly stalked; upper smaller and narrower, passing gradually upwards into bracts. Involucres ovate at the base when the plant is in flower, ventricose and constricted at the middle afterwards, like the erecto-patent peduncles clothed with white stellate down and a few black hairs and sometimes setæ. Heads of flowers rather smaller and more

numerous on the average than in *vulgatum*. Phyllaries dark green, paler at the edges, bluntish or acute; outer subsquarrose, inner narrowest. Ligules glabrous. Styles as in *vulgatum*.

In Teesdale, on the Durham side of the river, about Langdon-bridge and the High Force; and on the Yorkshire bank at Wince-bridge, but not plentiful. Hedgebanks between Middleham and Wensley, and by the Yore side at Aysgarth Force. In considerable plenty in the central valley in woods at Woodend and Dalton, near Thirsk, and various other localities. On the lias near Guisborough and Sutton, under Whitstoncliff; and on the edge of the eastern calcareous hills at Hornby Bank, and in Flazendale and Nettledale. Range of elevation in the district, from the coast-level to 400 yards. Like *H. gothicum*, this species must be considered as furnishing an intermediate link between the second and third Sections, and may occasionally be seen with a basal rosette whilst in flower.

10. *H. umbellatum*, Linn. Spec. Pl. 1131.—Stem one to two feet high, densely leafy, glabrous or hairy, rigid, straight or flexuose, paniculato-corymbose above. Leaves all sessile, very variable in number and shape, linear-lanceolate, lanceolate or oblong-lanceolate, narrowed gradually below, more or less toothed about the middle, paler and prominently veined on the under side. Peduncles usually rigid, erecto-patent, like the ovate-based involucres thinly covered with white stellate down and a few black hairs. Heads of flowers moderate in size, very variable in number. Phyllaries dark green, nearly uniform in colour; outer lax, squarrose, subacute, inner broader and blunter. Ligules glabrous. Styles yellow.

Thickets and open heathery places in the valleys, the dales, and amongst the arenaceous and calcareous moorlands, frequent. Range of elevation, from the coast-level to 400 yards. Varying especially in the number and breadth of its leaves, the broader the fewer, the narrower the more numerous. The broad-leaved forms are frequently labelled *H. rigidum* by British botanists. From all the varieties of *crocatum* easily recognizable by the narrow base of its involucres, and by its squarrose outer phyllaries.

11. *H. crocatum*, Fries, Summa, p. 6.—*H. inuloides*, Bab. Man. 2.—Stem one to three feet high, densely leafy, glabrous or hairy, rigid or flexuose, paniculato-corymbose above. Leaves

varying in shape from oblong to linear-lanceolate, rigid or flaccid, smooth or hairy, paler and prominently veined below; upper amplexicaul, lower narrowed to a rounded base. Peduncles erecto-patent, like the broad blunt-based involucres slightly stellately downy. Heads of flowers larger but not so numerous as in *umbellatum*. Phyllaries dark green, blackish when dried, sometimes slightly hairy or setose on the back, closely adpressed, all blunt. Ligules glabrous. Styles yellowish.

On the banks of Langdonbeck, near the bridge of the Middleton and Alston Road; on the Durham side of the Tees, on rocks above and below the High Force, and in the wood below the Inn; on the Yorkshire bank in considerable abundance; about Lower Cronkley-bridge and Wince-bridge; in Cleveland, on the edge of Botton-head, above Ingleby Greenhow. Range of elevation, 300 to 500 feet.—The variety *angustatum* of Fries approaches *umbellatum* on the one hand, and his *dilatatum*, the next species, in an opposite direction.

12. *H. corymbosum*, Auct. Angl.—*H. rigidum*, Symb. *fide* Fries.—Stem two to three feet high, densely leafy, nearly or quite glabrous, rigid or flexuose, paniculato-corymbose above. Leaves ovate-lanceolate, narrowed gradually towards the base, toothed about the middle, glaucous and prominently veined below, upper amplexicaul. Peduncles erecto-patent, usually rigid, scaly, like the broadly ovate-based involucres thinly covered with white stellate down and a few black hairs and setæ. Heads of flowers much more numerous, but smaller, than in *crocatum*. Phyllaries dark green, blackish when dried; outer loose, acute, inner attenuated upwards, and considerably narrower than in *crocatum*. Ligules glabrous. Styles yellowish.

With the preceding, in Teesdale, at Langdon-bridge, about the High Force, below Wince-bridge, and in other stations. In the valley of Gilling, on Kirby-hill, near Ravensworth, and in Swaledale Proper, in a wood near Downholme. Range of elevation, from 200 to 400 yards. Much more like *crocatum* than *tridentatum*.

13. *H. boreale*, Fries, Nov., p. 261.—Stem one to three feet high, densely leafy, usually glabrous, sometimes hairy, subcorymbose above. Leaves variable in number and shape, sessile, ovate-lanceolate, narrowed gradually to the base; upper broader below in proportion, sometimes slightly amplexicaul, more or less toothed about the middle, paler and somewhat glabrous on the under side. Peduncles rigid, erecto-patent, scaly, like the ovate-

based involucres, usually somewhat stellately downy. Heads of flowers more or less numerous, moderate in size. Phyllaries usually uniformly dark green, black when dried, nearly glabrous, occasionally paler at the edges, adpressed; outer lax, subsquarrose, inner narrowest. Ligules glabrous. Styles livid.

Woods, thickets, and heathery places in the valleys and dales, everywhere plentiful. Range of elevation, from the coast-level to 400 yards. With reference to the anticipated objection to the name, to which allusion is made in the 'Cybele Britannica,' Fries writes, "Nomen *borealis* respicit reliquas species (lucidum, sabaudum, virosum, etc.) hujus stirpis, ultra quarum limites boreales longe progreditur: plantas boreales non indenticas fingas cum arcticis. Occurrit quidem in Europa australiori, sed in alpibus et montibus tantum, ut plurimæ plantæ planitierum borealium."

In conclusion, we may sum up the geography of the *Hieracia* of North Yorkshire and Teesdale as follows:—

Four species (three of which are confined to Teesdale) occur only amongst the dales of our western moorlands, viz. *iricum, cerinthoides, pallidum, corymbosum.* Four species are common to the moorlands on both the eastern and western sides of the Vale of York, viz. *murorum, cæsium, gothicum, crocatum;* and the remaining five occur amongst both ranges of hills, and also in the midst of the central valley, viz. *Pilosella, vulgatum, tridendatum, umbellatum, boreale.*

Thirsk, 1, 10, 1856.

Report of Observations on the Deterioration of Isochimenal Temperatures in proportion to Altitude in the North of England.

The lines of winter temperature exercise such a predominant influence on the determination of the boreal limits of arborescent species and perennial herbaceous plants, that they claim the deep attention of botanical geographers. In the winter of 1854–5, with a view to collect data relative to this question, a series of observations were instituted under the auspices of my valued friend, T. Sopwith, Esq., of Allenheads and Newcastle, a gentleman well known as a practical and theoretical geologist, and at that time President of the Tyneside Naturalists' Club. Compared thermometers were stationed, one of them at the head of the valley of the Allen, at an elevation of 1360 feet above the level of the sea, and the other was placed at Bywell, a village between Hexham and Newcastle, at an elevation of 50 feet. The two stations are only fifteen miles apart, but the difference in level between them, it will be perceived, is 1310 feet. At each place, during the critical months of December and January, the daily temperatures were carefully registered,—with what result the following Tables will show :—

	BYWELL.			ALLENHEADS.			Difference between the Means.
	Max.	Min.	Mean.	Max.	Min.	Mean.	
Dec. 1	44	36	40	36	29	32·5	7·5
„ 2	44	36	40	36	27	31·5	8·5
„ 3	47	37	42	41	27	34	8
„ 4	47	40	43·5	43	32	37·5	6
„ 5	48	42	45	42	33	37·5	7·5
„ 6	48	41	44·5	38	31	34·5	10
„ 7	49	37	43	38	27	32·5	10·5
„ 8	50	38	44	44	28	36	8
„ 9	51	41	46	43	30	36·5	9·5
„ 10	50	39	44·5	34	24	29	15·5
„ 11	43	40	41·5	35	23	29	12·5
„ 12	50	42	46	41	30	35·5	10·5
„ 13	50	44	47	39	32	35·5	11·5
„ 14	50	45	47·5	47	36	41·5	6
„ 15	52	50	51	48	37	42·5	8·5
„ 16	53	41	47	48	29	38·5	8·5
„ 17	44	41	42·5	36	28	32	10·5
„ 18	44	35	39·5	36	25	30·5	9
„ 19	40	36	38	31	23	27	11
„ 20	42	34	38	38	25	31·5	6·5
„ 21	42	37	39·5	39	28	33·5	6
„ 22	50	45	47·5	49	38	43·5	4
„ 23	51	39	45	51	32	41·5	3·5
„ 24	45	42	43·5	39	31	35	8·5
„ 25	46	46	46	45	33	39	7
„ 26	45	39	42	39	30	34·5	7
„ 27	42	36	39	34	25	29·5	9·5
„ 28	40	32	36	33	19	26	10
„ 29	42	32	37	39	20	29·5	7·5
„ 30	47	42	44·5	43	36	39·5	5
„ 31	47	45	46	42	35	38·5	7·5
					Total . . .		261·5

This gives an average difference between the respective means of 8·4 degrees, or a diminution of nearly two-thirds of a degree of temperature for every hundred feet of elevation, and it will be noted that the January observations furnish almost precisely the same result.

	BYWELL.			ALLENHEADS.			Difference between the Means.
	Max.	Min.	Mean.	Max.	Min.	Mean.	
Jan. 1	47	46	46·5	44	36	40	6·5
„ 2	48	42	45	42	35	38·5	6·5
„ 3	47	42	44·5	38	36	37	7·5
„ 4	49	43	46	44	37	40·5	5·5
„ 5	48	43	45·5	43	37	40	5·5
„ 6	51	45	48	46	36	41	7
„ 7	50	47	48·5	44	35	39·5	9
„ 8	49	46	47·5	44	38	41	6·5
„ 9	48	40	44	42	32	37	7
„ 10	45	30	37·5	37	27	32	5·5
„ 11	44	35	39·5	39	27	33	6·5
„ 12	45	40	42·5	41	32	36·5	6
„ 13	45	39	42	39	32	35·5	6·5
„ 14	45	41	43	35	32	33·5	9·5
„ 15	44	37	40·5	36	28	32	8·5
„ 16	43	38	40·5	33	27	30	10·5
„ 17	43	33	38	32	22	27	11
„ 18	40	34	37	28	18	23	14
„ 19	39	34	36·5	30	22	26	10·5
„ 20	41	36	38·5	33	25	29	9·5
„ 21	39	38	38·5	29	22	25·5	13
„ 22	40	36	38	30	26	28	10
„ 23	39	32	35·5	30	20	25	10·5
„ 24	38	32	35	32	24	28	7
„ 25	40	36	38	31	25	28	10
„ 26	39	36	37·5	32	24	28	9·5
„ 27	42	34	38	31	18	24·5	13·5
„ 28	42	34	38	30	17	25	13
„ 29	38	30	34	30	13	21·5	12·5
„ 30	39	27	33	28	14	21	12
„ 31	35	29	32	26	18	22	10
					Total . .		280

Though the results of the two months' observations closely correspond, it is probable this diminution of two-thirds of a degree per hundred feet is a higher proportion than will fairly represent a general average. The dale of the Allen opens out towards the north, and the high Pennine lands that rise about the upper part of the valleys of the Tyne, Tees, and Wear will not only interpose to check the current of the warm winds, but also to lower the temperature by their contiguity. The data are unexceptionable as far as they go, and most likely quite accurate as regards the stations selected; but extended observations and comparisons are necessary before we can establish reliable generalities.

John G. Baker.

Dates of the Foliation of Trees and Shrubs, and of the Flowering of Plants. By the Rev. Hugh A. Stowell.

FOLIATION OF TREES AND SHRUBS.

	1854.	1855.	1856.
Lonicera Periclymenum	Jan. 20	March 2	January 13
Sambucus nigra	Feb. 14	March 19	Feb. 12
Syringa vulgaris	Feb. 27	March 23	Feb. 28
Ribes Grossularia	March 1	March 19	Feb. 26
Ribes nigrum	March 6	March 25	March 2
Rosa canina	March 7	April 3	March 2
Cratægus Oxyacantha	March 16	April 5	March 13
Pinus Larix	April 3	April 18	April 3

FLOWERING OF PLANTS.

Ulex europæus	Jan. 1	Jan. 4	January 6
Galanthus nivalis	Jan. 13	Feb. 26	January 22
Leontodon Taraxacum*	Jan. 17	Jan. 4, March 16	January 7
Corylus Avellana	Jan. 20	Feb. 26	January 2
Lamium purpureum*	Jan. 20	Jan. 3, March 16	Feb. 16
Anemone Hepatica	Jan. 29	Feb. 24	Feb. 16
Primula vulgaris*	Feb. 1	Jan. 4, March 4	January 8
Crocus vernus	Feb. 8	March 7	Feb. 16
Capsella Bursa-pastoris*	Feb. 12	Jan. 4, March 3	Feb. 4
Draba verna	Feb. 12	March 10	Feb. 9
Lamium album*	Feb. 13	Jan. 3, March 18	Feb. 29

* Late blossoms.

	1854.	1855.	1856.
Tussilago Farfara	Feb. 19	March 21	March 8
Veronica agrestis	Feb. 27	March 15	Feb. 22
Taxus baccata	Feb. 28	March 26	Feb. 22
Vinca minor	Feb. 28	March 19	March 2
Ranunculus Ficaria	Feb. 28	March 17	March 2
Potentilla Fragariastrum	Feb. 28	March 26	March 6
Viola odorata	Feb. 28	March 22	Feb. 16
Nepeta Glechoma	March 2	April 9	March 8
Veronica hederæfolia	March 2	March 15	Feb. 29
Ruscus aculeatus	March 3	March 15	March 7
Viola hirta	March 11	April 3	March 8
Daphne Laureola	. . .	April 12	Feb. 24
Anemone nemorosa	March 13	April 6	March 14
Stellaria holostea	March 13	April 18	March 24
Mercurialis perennis	March 13	April 6	March 4
Salix Caprea	March 13	April 2	March 4
Narcissus Pseudo-Narcissus	March 14	March 30	March 7
Oxalis Acetosella	March 18	April 20	March 18
Luzula pilosa	March 18	April 6	March 21
Cardamine pratensis	March 22	April 18	March 26
Primula veris	March 22	April 23	April 1
Myosotis collina	March 23	April 14	March 27
Viola canina	March 24	April 18	March 27
Luzula campestris	March 27	April 19	March 31
Adoxa Moschatellina	March 28	April 23	March 27
Anthriscus sylvestris	March 28	April 28	April 5
Prunus spinosa	March 31	April 21	April 6
Cheiranthus Cheiri	April 2	April 11	April 3
Sarothamnus scoparius	April 3	May 2	April 12
Caltha palustris	April 3	April 18	April 9
Fritillaria imperialis	April 5	April 17	April 11
Ribes nigrum	April 5	April 19	April 8
Ribes Grossularia	April 5	April 17	April 6
Pyrus communis	April 7	April 28	April 10
Prunus avium	April 8	April 27	April 12
Pyrus Malus	April 10	May 3	April 13
Lychnis diurna	April 12	May 4	April 16
Fragaria vesca	April 12	May 3	April 19
Agraphis nutans	April 12	May 1	April 16
Orobus tuberosus	April 13	May 1	April 17
Geranium robertianum	April 13	April 30	April 4
Viburnum Lantana	April 14	May 10	April 17
Euphorbia amygdaloides	April 14	May 6	April 17
Vicia sepium	April 15	May 7	April 21
Veronica Chamædrys	April 15	May 1	April 16

	1854.	1855.	1856.
Alliaria officinalis	April 18	May 8	April 21
Cratægus Oxyacantha	April 20	May 7	May 2
Syringa vulgaris	April 21	May 21	May 2
Ajuga reptans	April 21	May 11	April 24
Orchis mascula	April 21	May 8	April 21
Polygala vulgaris	April 21	May 17	April 24
Ranunculus bulbosus	April 21	April 30	April 20
Geranium molle	April 21	May 7	April 21
Sisymbrium officinale	April 21	May 8	April 23
Lamium Galeobdolon	April 21	May 10	April 22
Poterium Sanguisorba	April 22	May 21	April 26
Ranunculus auricomus	April 22	May 1	April 16
Erigeron acris	April 22	May 20	May 5
Polemonium cæruleum	April 22	May 22	April 25
Hieracium Pilosella	April 24	May 19	April 26
Scandix Pecten	April 26	May 17	April 26
Chelidonium majus	April 27	May 10	May 1
Cochlearia anglica	April 27	May 12	April 30
Trifolium pratense	April 27	May 26	May 1
Matricaria inodora	April 28	May 14	April 28
Lotus corniculatus	April 28	May 9	May 3
Trifolium repens	April 28	May 18	May 1
Acer Pseudo-platanus	April 29	May 21	May 3
Sherardia arvensis	May 1	May 14	May 1
Vicia hirsuta	May 1	May 22	May 4
Lychnis vespertina	May 2	May 28	May 1
Galium Aparine	May 2	May 17	April 30
Veronica montana	May 2	May 18	May 1
Geranium dissectum	May 2	May 24	May 3
Ranunculus Flammula	May 3	May 12	May 3
Geum urbanum	May 3	May 21	May 7
Asperula odorata	May 3	May 12	May 7
Potentilla Tormentilla	May 3	May 22	May 4
Stellaria uliginosa	May 3	May 16	May 7
Arenaria trinervia	May 3	May 25	May 10
Viola tricolor	May 3	May 17	April 29
Cytisus Laburnum	May 5	May 31	May 8
Sanicula europæa	May 6	May 14	May 5
Helianthemum vulgare	May 8	May 28	May 9
Crepis virens	May 8	May 24	May 11
Chrysanthemum leucanth.	May 8	May 24	May 7
Cynoglossum officinale	May 12	June 16	May 17
Fedia olitoria	May 12	May 16	May 12
Ranunculus scleratus	May 12	June 5	May 16
Œnanthe Phellandrium	May 12	June 5	May 17

	1854.	1855.	1856.
Armeria maritima	May 15	May 27	May 14
Parietaria officinalis	May 15	May 29	May 14
Bunium flexuosum	May 16	May 26	May 20
Fumaria officinalis	May 16	June 4	May 12
Veronica Beccabunga	May 16	May 25	May 14
Melampyrum pratense	May 19	June 2	May 22
Onobrychis sativa	May 19	June 4	May 22
Orchis Morio	May 19	May 27	May 17
Silene inflata	May 19	June 2	May 19
Reseda lutea	May 19	May 27	May 22
Hypochœris radicata	May 19	June 2	May 19
Habenaria bifolia	May 22	June 5	May 23
Listera ovata	May 22	May 25	May 20
Rosa canina	May 24	June 4	May 30
Papaver Rhœas	May 24	June 8	May 27
Ranunculus arvensis	May 24	May 26	May 22
Torilis nodosa	May 24	June 13	May 26
Matricaria Chamomilla	May 24	June 11	May 30
Anthyllis vulneraria	May 25	June 5	May 27
Tragopogon pratensis	May 25	June 11	June 1
Urtica urens	May 25	June 2	May 23
Apargia hispida	May 25	June 14	June 3
Crepis biennis	May 25	June 2	May 27
Lychnis Flos-cuculi	May 26	June 8	May 30
Medicago maculata	May 26	June 2	May 27
Stachys sylvatica	May 28	June 9	June 2
Sambucus nigra	May 29	June 11	May 28
Scrophularia nodosa	May 29	June 5	May 29
Epipactis grandiflora	May 29	June 11	June 2
Bryonia dioica	May 29	June 14	June 2
Euonymus europæus	May 29	June 11	May 29
Solanum Dulcamara	May 29	June 4	June 2
Lathyrus pratensis	May 31	June 11	May 29
Tamus communis	May 31	June 16	June 5
Ligustrum vulgare	May 31	June 14	June 2
Malva sylvestris	May 31	June 2	May 27
Ophrys apifera	May 31	June 16	June 11

DIANTHUS CÆSIUS. *By the* REV. W. T. BREE.

On revisiting, in June last, the beautiful and romantic Chedder Cliffs, in Somersetshire, after an interval of more than forty years, I was sorry to find that the Chedder Pink, *Dianthus cæsius*, *the rare plant of the place,* seemed to be entirely exterminated from its wild native locality. I had gathered it there in 1814, and have still the specimen by me; but in June last I could not see a single specimen of the plant in a wild state, high or low,—not even in the inaccessible parts of the cliffs. Now as Chedder is, I believe, the only well-authenticated station for the plant in Britain, the next generation of botanists will perhaps begin to doubt whether it is, or even was, a genuine native. I do not mean to say that *Dianthus cæsius* is not still to be procured at Chedder; far from it: you may have plenty of it for sixpence or less money; moreover, it grows in profusion in most of the cottage-gardens and on the walls about the village, and I can scarcely believe that it does not still exist in some of the more precipitous parts of the cliffs; but after diligent search in June last, I was unable to get a truly wild specimen, or even to *see* one on portions of the rocks out of reach. I strongly suspect that the Pink has been wantonly destroyed,—at least from all the more accessible parts of the cliffs,—in order to drive a trade by selling it. You must buy it of its destroyers, or be content without it. No lady or gentleman, having the air of a visitor about them, can now pass along to view the scenery without being absolutely mobbed by a number of most importunate old women, who come out to you with bundles of the Pink and baskets of the seed, ready made up, which they offer you for sale. Entertaining, as I did most strongly, the above suspicion, I was resolved not to deal with these mercenary ancients, and accordingly helped myself to what I wanted from the walls in the village;—not that I would grudge giving three times the sum asked for the bundles, to a person who would direct me to the spot where the plant grows wild, and let me gather it for myself, for there is a pleasure in so doing, which is not to be attained by the mere purchase of a rare plant that has been cultivated and cooped up in a garden.

It is unfortunate for the cause of Natural History when its objects become articles of money-making—of bargain and sale: the practice not only opens a door to all sorts of frauds and imposition (as entomologists well know), but it tends also, if I may so say, to falsify Natural History, and to exterminate rare and interesting species from their native localities. I have been credibly informed that, a few years ago, a dealer in living Ferns went to the neighbourhood of Settle, in Yorkshire, and actually carried away with him a large hamper full of *Aspidium Lonchitis*, plucking up with unsparing hand, root and branch, every morsel of the Fern he could meet with; so that now it is scarcely, if at all, to be found in that neighbourhood. An excellent resident botanist at Settle, and a most kindly communicative one, I believe, still knows of *one* specimen growing in the district, the whereabouts of which he will reveal to none, and I greatly applaud him in this instance for his reserve.

On my former visit to Chedder I had failed to notice—or else I had strangely forgotten—the astonishing profusion in which *Polypodium calcareum* grows there, especially on the less rocky places and the upper part of the valley. To say that it grows by the acre would be speaking far within the mark: it occupies extensive tracts, growing as copiously as *Pteris aquilina* does on many a waste common; so that unless this part of the country should some day be brought under tillage, this species at least may defy the ravages of all fern-dealers and vendors of rare or local plants. I did not observe either of the allied species, *P. Dryopteris* and *Phegopteris*, in my ramble on the Mendips. I was pleased to find that since my first visit to Chedder, and after having in the meantime seen many other examples of fine rocky scenery on a very much grander scale, still these very beautiful cliffs had lost nothing, in my estimation, on a second visit.

Allesley Rectory, August 8th, 1856.

Rare Plants in Aberdeenshire, Kincardineshire, etc.

To the Editor of the 'Phytologist.'

I have returned from a hasty run through some of the northern parts of Scotland, where a month has been passed in an agreeable if not profitable manner; and now, to redeem my promise, I send you a few odd notes on the journey. The parts visited are perhaps scarcely so interesting to a lover of plants, as a journey on the western side might have been; my own was a rising route through the counties of Aberdeen, Banff, Kincardine, Murray, Forfar, Perth, and the eastern part of Inverness, with a day or two about Edinburgh.

From London to Aberdeen, a pleasant voyage, by steamer, of forty-eight hours. Here, what with later rains and the difference of latitude, vegetation had more the appearance of the end of spring, than the commencement of autumn. Strawberries were abundant in the market, other fruit and vegetables also late in the same proportion.

Visiting the locality for *Cystopteris Dickieana* (viz. a sea-cave at the Cove), a small fishing village five miles south of Aberdeen, I was much disappointed to find the cave fallen in considerably, and the few plants remaining very small. I gathered however sufficient to identify *C. Dickieana, C. dentata,* and *Asplenium marinum, Athyrium F.-f. marinum,* in a beautiful state; also another very distinct form, of vigorous growth, somewhat approaching the *marinum* form: *Ligusticum scoticum,* very abundant, *Astragalus hypoglottis, Geranium sanguineum, Cochlearia officinalis, Helianthemum vulgare.*

Being rather reluctant to return without some more tangible proofs of the *Cystopteris,* I examined many of the adjacent nooks and crevices without meeting it until near two miles beyond the Cove, towards Lighthouse Point; here, by a small rill that fell over the rocks, I managed to creep down and was gratified to find *Cystopteris* in profusion. It is growing on rocks which overhang, so that the plants are much sheltered. I gathered fronds of *C. Dickieana* here from six to eight inches long; *C. dentata* also plentiful. The only instance of my meeting with *Osmunda regalis* occurred here; it was growing at the foot of the cascades. From the luxuriant specimens (*Cystopteris*) gathered here, and the abundance of plants noticed, I presume no ruthless hand had been plant-gathering here of late, whilst the difficulty of reaching the spot will always afford it protection from invaders, excepting perhaps those affected with the Fern-mania. I filled my box with plants and fronds, leaving abundance for those who choose to follow by venturing the same road.

North-east of Aberdeen, to the Spey, the land is much cultivated; few hills of any magnitude occur. I met with few plants of interest, excepting *Linnæa borealis,* in woods at Craibstone, beyond the quarries called "Dancing Cairns," *Juncus balticus,* near the sea, as between the Cove and Lighthouse Point, *Trientalis europæa,* a common plant in most of the wooded parts, accompanied generally by *Goodyera repens.* I may mention that *Linnæa borealis* is also plentiful in the woods at Dufftown, thirty miles to west of Aberdeen. I could find no other localities for this plant, and from the information gathered respecting it, this seems to be one of the scarcest of northern plants.

Plantago maritima is very common as a roadside plant, occurring far *inland* from twenty to thirty miles frequently,—all the way from Huntley to Grantown.

A trip to the Loch of Drum, Kincardine (fifteen or twenty miles from Aberdeen), for *Isoetes lacustris,* proved this to be a capital botanical station. The Loch is a shallow piece of water, scarcely over four feet in depth at any part, extending over a surface of from eighty to ninety acres; the favourable depth of water renders it suitable for many aquatic plants, and the bottom is literally carpeted with plants. I found *Isoetes lacustris, Subularia aquatica, Littorella lacustris, Lobelia Dortmanna, Chara vulgaris, Nitella translucens, Utricularia vulgaris, U. minor, Potamogeton lanceolatus, Equisetum fluviatile, Scirpus lacustris, Pilularia gobulifera,* near the lake, *Radiola millegrana, Ophioglossum vulgatum, Goodyera repens, Trientalis europæa, Parnassia palustris,* (*Nuphar lutea* in the lake). I gathered also a pretty *Nymphæa,* with small white flowers, in shallow sedgy water about two miles above the Loch towards the mountains; it is probably the variety of *Nymphæa alba,* known as *N. minor.* The plant is very distinct, resembling the American *N. odorata;* leaves from four to six inches in diameter; flowers about the size of a shilling-piece. I have never seen this form under cultivation, but it will be a nice addition to the small aquarium, and I have managed to get home some plants in safety.

Expecting to find *Polypodium alpestre,* a common Fern on most of the mountains north of the Dee, I ascended some of the principal elevations, but without success, although some heights must have been over 3000 feet. The first appearance of this occurred on Loch-na-Gar, ascending it from the falls known as the Gar Vault; but here it was not plentiful but sparingly distributed in correis with a singular-looking Lastrea, almost destitute of an indusium; elevation about 3500 feet. *Azalea procumbens* was plentiful, also *Silene acaulis, Lycopodium annotinum,* the usual *Saxifragas,* as *stellaris, aizoides, hypnoides* and *oppositifolia,* the rare *Phleum alpinum,* and, lower down where once a Birch-forest stood, *Betula nana;* this was growing singularly alone, unaccompanied even by the common Ling.

Visiting the correis of Glen Callater on the following day I found abundance of *Polypodium alpestre* on most of the sheltered ledges of the rocks, and some "forms" of it were gathered, but nothing strictly approaching *P. flexile.* This Fern, growing wild, is distinct in its appearance from *Athyrium;* I never saw them growing together, the latter does not seem to like such a high situation. Other Ferns collected here were *Allosorus crispus,* amidst the *débris* of the schistose rocks, *Asplenium viride, Polypodium Phegopteris, P. Dryopteris.* On rocks above the Loch Caulden, in the same glen, the rare *Salix lanata, Veronica alpina, Hieracium alpinum* or the *H. villosum, Sibbaldia procumbens, Cochlearia alpina, Oxyria reniformis,* and most of these seen on other parts of Loch-na-Gar; in the glen near Loch Callater, *Juncus filiformis, trifidus, triglumis, Tofieldia palustris, Carex pauciflora, C. aquatilis?, Carduus heterophyllus, Potentilla verna.*

Having collected *Gymnogramma leptophylla* in the Channel Islands soon after its discovery there, I was anxious to ascertain if the locality mentioned for this Fern in the North had any other plants in common with the Jersey Flora, but appearances are much against the plants ever having been found here. The rock called "Lion's Face" occurs by the roadside between Balmoral and Braemar; the site has a northern aspect, and is now completely occupied with *Polypodium Dryopteris, Arbutus Uva-ursi* and *Vaccinium,* among which I could find no traces of a *Gymnogramma* having ever existed.

I was rather surprised to find *Mimulus luteus* so completely naturalized in many of the solitary mountains, bogs, and glens, especially about Aberlour; some one has been industriously distributing seeds, as much of it was seen far above the limits of cultivation; spots about the Spey were quite yellow with it.

Should there be anything in these rough notes which you may deem it desirable to make use of, pray do so; and if a more definite account of the habitat of any species mentioned is required, I shall feel pleasure in adding it. I have collected living plants of most of the species mentioned, but my dried specimens suffered much from wet, the inconvenience of a knapsack, and travelling on foot through a country where inns are neither plentiful nor worth much. Yours truly,

C. Barter.

Botanic Gardens, Regent's Park.

On the Pansies *of our Coast Sandhills.* *By* J. G. Baker.

The fact of the occurrence of two different Pansies, one with yellow, and the other with purplish flowers, amongst the sandhills of the west coast of England, has long been known to botanical collectors (*vide* 'Cybele,' vol. i. p. 183), and was two or three times mentioned in the old series of the 'Phytologist' (vol. iii. p. 46, etc.), but I am not aware that they have ever been fully studied and determined. I have never had the opportunity of even seeing either of them in a growing state, and can therefore only furnish very incomplete information, but possibly a short notice here may have the effect of attracting the attention, to the matter, of some one more favourably situated for observation.

It is to the yellow-flowered plant, which grows about the estuary of the Torridge in Devonshire, and Aberffraw in Anglesea, that the name of *Viola Curtisii* rightfully belongs. The other, which occurs on the Cheshire coast in the neighbourhood of New Brighton, is the *V. sabulosa* of Boreau ('Flore du Centre de la France,' 2nd edit.), and Mackay's *Curtisii* from Portmarnock appears to be identical.

The Violas of the Section *Melanium* of De Candolle may be classified under three biological categories. The species of the first of these are characterized by their annual, and of the second by their perennial, duration; and they are respectively well represented in our indigenous Flora by *tricolor* and *lutea*. The plants of the remaining class are, to quote Jordan, "neither strictly annual, biennial, or perennial, but flower usually the first year of their existence; and if they live more than a year, their root has none the less the aspect of an annual root, and by no means resembles a rhizome which lasts and developes itself each year under the ground." This last mode of growth is exemplified by *V. rothomagensis* and several others. To which of these categories do *Curtisii* and *sabulosa* belong? To the second, I suspect; and if so, geographical considerations afford strong *a priori* grounds for a belief that they are not specifically identical with *lutea*.

As compared with one another, *Curtisii* more closely resembles *lutea*, and *sabulosa tricolor*.—*V. Curtisii:* Root long, slender, and fibrous. Stems slender, cæspitose. Leaves somewhat fleshy; lower ovate, sparingly crenate; upper narrower. Stipules pinnatifid; lobes all entire; lower linear; terminal lobe broader and elongated. Sepals linear-lanceolate, acute, nearly as long as the petals. Petals pale yellow, deeper within, upper pair just touching each other, lowest broadly obovate, marked at the base with five faint lines. Spur yellowish, gradually narrowed to a blunt apex, slightly exceeding the calycine appendages.—*V. sabulosa:* Root long, slender, and fibrous. Stems slender, cæspitose. Leaves hairy, somewhat fleshy; lower ovate, lanceolate, crenate; upper narrower. Stipules pinnatifid; marginal lobes linear, entire; terminal lobe larger than the others and broader, bluntly crenate or nearly entire. Sepals linear-lanceolate, narrowed gradually to the apex, nearly as long as the petals. Petals larger than in the preceding; upper pair purplish, and slightly overlapping; lowest yellowish, within purple at the circumference, broadly obovate, marked below with five purplish lines; spur purplish, narrowed gradually to a blunt apex, exceeding considerably the calycine appendages.

From *V. rothomagensis* of Desfontaines, as represented in my collection by the plant of Rouen, *sabulosa* differs by the smaller proportion which its sepals bear to its petals, the smaller size of all its parts, by its less hispid stem and leaves, and by the crenate terminal lobe of its stipules. *V. rothomagensis*, of the 'Flora Tonbridgensis,' according to an authenticated specimen from Mr. E. Edwards, is only one of the forms of *tricolor;* but of these more hereafter.

Review.

Concise Notices of BRITISH GRASSES *best suited for Agriculture, with Preserved Specimens of each kind. By* DAVID MOORE, M.R.I.A., A.L.S., Curator of the Royal Dublin Society's Botanic Gardens, Glasnevin. Dublin: McGlashan and Gill. London: Orr and Co.

The author of this useful work, in his general observations on the subject, states that "about 2000 species of Grasses are said to have been already collected. Dr. Lindley computes that their ratio to all other phænogamous plants is as one to twenty: of these, 116 are indigenous to the British Isles, 96 to Scotland, and 82 to Ireland." The British Grasses are rather understated at

116. The number now given in botanical books is about 130; the number in the last edition of the London Catalogue is 117, and the excluded species are 15; so the number of British Grasses may be reckoned to be as is presumed by the above estimate. But as Dr. Lindley's estimate was made above twenty years ago, when the number of phænogamous plants known was believed to be about 40,000, at the present time it should be doubled at least, since above 80,000 plants are now known. Mr. Moore's treatise does not profess to enumerate, describe, and give specimens of all the British species, but only of such as are valuable as pasture or fodder Grasses. On the *recto* page there is a dried specimen of one or two Grasses, and on the *obverse* there is a plain description of the species, whether there be one or two, with an account of its localities, habit, utility, cultivation, varieties, etc.

Prefixed to the descriptions and examples of these Grasses there are tables, which show the kinds and quantities of seeds requisite for sowing an acre, either for mowing or for pasture, also for one or for several years. Farmers will be generally able to judge, by experience, what quantity of seeds should be sown to ensure a crop; but it is submitted both to the practical agriculturist and to the compiler of these *tables,* that if 9 lbs. of Rye-Grass be sufficient for one year's hay and two years' pasture, then 12 lbs. will be too much for one year's hay; or, again, if 12 lbs. be necessary to ensure a good crop of hay for one year, 9 lbs. will afford a less crop for one year's hay and two years' pasture. During the second and third years the land will get many adventitious plants to fill up the *voids* left by the use of a less portion of seed, but the first year's hay will surely be less abundant than if the full quantity was used, whether the land was to be broken up for wheat after the *seeds,* or whether the field was to be pastured for two years.

It has been matter of surprise, to the writer of this, to observe the pertinacity with which farmers cling to the Rye-Grass (Ray-Grass). There are more succulent and leafy Grasses than this, but Rye-Grass has been sown from time immemorial, and is consequently not easily supplanted in popular estimation. Once, when botanizing on the dry chalky hills opposite Rochester, in Kent, there were observed some fields at a considerable elevation, which had been sown with seeds, and among these the Meadow

Foxtail (*Alopecurus pratensis*) was prominent. To a gentleman whom we met in the vale, and who was, with good-humoured banter, sneering at our humble and innocent occupation of *simpling*, we ventured to hint, that our pursuit, frivolous though it might appear to him, was not altogether useless to society: the example of the Foxtail was pointed at as an illustration that there was something of a relationship between soils and plants such as was never dreamed of by the unscientific or unlearned in such matters. He was informed that the common Grass of these downs, Sheep's Fescue (*Festuca ovina*), was a good succulent Grass, even on these dry and unsheltered places, and that it was permanent because suitable for the soil; but, on the other hand, it was stated that the Foxtail was reduced there to dry bents, which the sheep could not or would not eat, and moreover that it would not be permanent—could not keep hold of the soil. This is the case with the Ray-Grass: it holds out for a year or two, or longer if the ground be good (we have an idea that it is a scourge to the land), but it fails to maintain its existence among the hardier Grasses and weeds that strive to monopolize the soil. Timothy-Grass (*Phleum pratense*) has long been celebrated in America, and we were glad to see it grown rather extensively by the Marquis of Breadalbane, at Taymouth. It is almost unknown in England as an agrarial Grass. Italian Ray-Grass is likely ere long to supersede its perennial namesake, and very deservedly: its larger size, quicker growth, and more abundant herbage, well entitle it to the great attention it has excited of late years. It is warmly recommended by the author of the work under consideration.

The Brome Grasses—at least those of the annual species—were considered, in Scotland, as not merely worthless, but as injurious weeds, and great care used to be taken to prevent their seeds from mingling with those of the Ray-Grass; and as these Bull-Grasses, as they were then and there called, did not grow up on the second and third year's leys, a portion of these two- and three-years'-old Grasses was reserved for seed. Yet it appears from Professor Way's table, p. 11, that these universally-accounted worthless Grasses contain, in 100, 4·05 parts of albuminous or flesh-forming elements, and that the highest in this series is Timothy-Grass, which contains a percentage of 4·86 of the same valuable constituents. Meadow Barley-Grass (*Hordeum pratense*) contains 4·59 per cent. of the same; Crested Dog's-tail and Cock's-foot respectively 4·13 and 4·06. The two latter have always been highly esteemed. The Barley-grasses are disliked by cattle while pasturing, as much as barley-straw is disliked by animals in the stall or in the strawyard.

There is an exotic Grass, *Poa sudetica,* which has been observed in several parts of Middlesex and Surrey, in the neighbourhood of London, for several years, and which we would seriously recommend to the author of this work, and to agriculturists and seedsmen in general. It is an early Grass, very hardy (it is a native of Sweden), and retains its hold on the soil. Its root-leaves are abundant, somewhat hassocky, much broader and longer than the foliage of either *Poa pratensis* or *P. trivialis;* both, but especially the latter, valuable Grasses. *Poa sudetica,* the Swedish *Poa,* far surpasses these in the quantity of green herbage or of fodder which it is capable of yielding. We should have much pleasure in sending either specimens or seeds to the Curator of the Royal Botanic Society's Garden, if he will inform us how we could do this free of cost.

We beg leave to thank the author for his book, which we beg leave cordially to recommend to our readers, and especially to such of them as are interested in agrarial pursuits. From our own knowledge of such matters, we commend it as a trustworthy guide; and we are glad to be able to state that its usefulness will not be impaired by either its price or its style, for unnecessary technicalities are carefully avoided.

We have never noticed the term "phœnoragamous" before,—is it a misprint for 'phanerogamous' or 'phænogamous,' from *φανερος* and *γαμος,* or *φαινω* and *γαμος*?

BOTANICAL NOTES, NOTICES, AND QUERIES.

Cerastium arvense, var. β. strictum.—Since I sent you the Notes from my Journal, I have found the var. *β. strictum* of *Cerastium arvense,* in a field close to the sea-shore near the town of Galway, growing in patches among stones. Stem recumbent at the base, then ascending. I could not find the plant described in any Flora in my possession. I therefore sent it to a botanical correspondent at Minehead, who returned it as "*β. strictum* of *Cerastium arvense,*" described in Steele's 'Handbook of Field Botany,' p. 84, second edition, and giving as the only locality, "Great Isle of Arran." "*β. strictum:* stem declinate, with sublinear, acuminate, glabrous or subhirsute leaves." I sent the plant to another botanist, remarking that I could not see mention of it except in the London Catalogue. He replied, "Sir J. E. Smith, like Sir W. Hooker, ignores the plant. Babington gives as a characteristic of the 'Var.,' stem and leaves glabrous." The leaves of my plant are glabrous, but not the stem. We found *Aquilegia vulgaris*, Columbine, of course out of flower, last week beside a running stream in a boggy field; also *Polygonum minus*, with the pretty white var. of *P. Persicaria*, which, with the white var. of *Erythræa Centaurium*, we find very frequently. C. A. C.

Galway, September 10.

[The fair discoverer of this Irish rarity authorizes us to mention that she will gladly give specimens on application by letter. For address inquire at the office of this Journal.]

Common Plants.—As it is only by the accumulation and comparison of evidence, derived from a great number of localities, that your List of "Common Plants" can be perfected, I am induced to send you the following remarks, which apply to the neighbourhood of Canterbury and to that of Oxford. I have adopted your plan of considering those species as rare, "the individuals of which are few, and their occurrence infrequent," in the districts mentioned. The following can scarcely be considered "common" in either locality:—*Ranunculus hederaceus, Genista anglica, Anthyllis Vulneraria, Ornithopus perpusillus, Orobus tuberosus, Rosa spinosissima, Peplis Portula, Saxifraga granulata, Œnanthe crocata, Vaccinium Myrtillus.* As "rarities" about Oxford I cull from your List—*Spergularia rubra, Spartium scoparium, Tanacetum vulgare, Solidago Virga-aurea, Digitalis purpurea, Lastrea Oreopteris, Asplenium Trichomanes, A. Ruta-muraria, A. Adiantum-nigrum, Lycopodium clavatum,* while *Drosera rotundifolia* and *Lycopodium Selago* have, I fear, vanished entirely. Near Canterbury the search for *Drosera rotundifolia, Achillea Ptarmica, Pinguicula vulgaris, Lastrea Oreopteris, Lycopodium clavatum,* and *L. Selago,* would be a vain one; nor do I think that any of the following are to be found within five miles of either town—*Radiola millegrana, Hypericum dubium, Comarum palustre, Erica cinerea, E. Tetralix, Utricularia minor, Littorella lacustris, Myrica Gale, Narthecium ossifragum, Eriophorum vaginatum.*

I see no notice, in Mr. Stowell's List of Faversham Plants, of *Osmunda regalis* and *Utricularia minor.* I have specimens of the former from Perry Wood, gathered several years ago. Is it extinct in that locality?

Botanic Gardens, Oxford, Sept. 15. MAXWELL T. MASTERS.

Plants on Barnes Common, May 30th, 1856.—In flower, *Trifolium subterraneum, Chelidonium majus, Genista anglica, Hyacinthus nonscriptus, Berberis vulgaris,* in a shrubbery, *Ranunculus sceleratus, Teesdalia nudicaulis,* in fruit and in flower, *Polygala vulgaris, Veronica arvensis.* The common Yellow Broom was coming into flower; the Furze was in full flower; the Hawthorn flower fading and falling off. Several plants usually deemed the *rejectamenta* of gardens grow here and there; among them the following are pretty well established:—*Onopordon Acanthium, Delphinium Consolida, Hyoscyamus niger* (this grows on several other parts of the Common, as well as on rubbish-heaps). *Acorus Calamus* and *Hydrocharis Morsus-ranæ,* which grow at the bottom of the Common, were not of course in flower. J. A., *Chelsea.*

Orobanche rubra.—In September, 1854, I gathered a tuft of what I took at the time to be this plant, growing among straggling bushes of *Prunus spinosa*, on some low rocks about a mile from the town of Settle. It was apparently parasitical on the fine fibrous radicles of *Thymus Serpyllum*, and widely different in "*facies*" and habit from the *Orobanche Hederæ* of the ivy-covered sea-cliffs of South Wales and the West of England. J. Hardy.

Hulme, Manchester.

Drosera anglica.—Sir,—Your correspondent "Q." (p. 439) asks about *Drosera anglica* in Devonshire. It is mentioned as occurring near Sidmouth, in the 'Flora of Sidmouth,' by Dr. Cullen; and a friend of mine assured me she had seen it herself in a bog near Axminster. I have looked for it in vain in many places where, if anywhere, it ought to be found—on Dartmoor and on Woodbury Hills. As to its range on the Continent, I have found it in Bergenstift, in Norway. J. P.

Hypericum hircinum.—Sir,—In your number for September, 1855, (p. 117) there is a notice of *Hypericum anglicum* having been found about Falmouth Harbour. When residing at Falmouth in 1845, I gathered *Hypericum hircinum* in that neighbourhood, and pointed out the station to my friend Miss Warren, a lady whose thorough acquaintance with the botany of her native country is well known; in her opinion this *Hypericum* was not truly wild,—it would appear however that it is now quite naturalized in that locality. In a recent communication Miss Warren observes: "The idea of *Hypericum anglicum* being a *Cornish* plant is now, I think, entirely set at rest. It has proved to be *H. hircinum* in every locality in this neighbourhood where found by all the explorers, and the *same* as yours, which still keeps its station at Swanpool." The enclosed is a branch from a specimen obtained by me in 1845.

J. Gifford.

[Our kind correspondent does not give us any address, and this has prevented our writing privately to J. G. Any further particulars about the other localities for *Hypericum hircinum* will much oblige us. We are aware that it is not a British plant; but it is a fact that it is in a fair way of establishing itself as a naturalized foreigner.]

Can any of your correspondents inform me if *Bupleurum fruticosum*, Lin., has established itself on the beach near Ramsgate? A small portion of a plant, which I suppose to be the above, has been forwarded to me by a lady, who informs me that it is growing plentifully at Ramsgate.

W. M. Hind.

Viola.—In Greek, ἴον, from ἴς, *vis; unde Viola*, the plant of strong or powerful scent. G.

Helianthemum vulgare.—Hooker and Arnott, Br. Fl. 7th ed., *in re Helianthemum polifolium*, Pers., state the following:—"Flowers white. In gardens all intermediate states may be observed between this and the last, *H. vulgare*, of which, with about fifty other supposed species, it is probably a mere variety." Will any reader of the 'Phytologist,' well acquainted with these plants, favour us with his opinion on the specific identity or distinction of these two plants, *H. vulgare* and *H. polifolium?* Reichenbach, plate xxxv., fig. 4556, names one state with white flowers, *mutabile*, Pers.; another, 4556 b, is *confusum*, Sweet; and a third form, 4556 c, is *polifolium*, Pers. In the names *mutabile* and *confusum* there is something which is not satisfactory.

Shamrock.—Your correspondent "H. B." (p. 366) has travelled very far to find the derivation of *Shamrock*. May I suggest to him a derivation equally probable, and found in the Shamrock's native home? The word is *Shamrog* in Irish,—a diminutive of *Shamar*, trefoil,—and literally signifies *young trefoil.* W. M. HIND.

Echium violaceum.—In all the Floras I have seen, *Echium violaceum* is described as *biennial*. I find that it flowers in the same year in which it is sown. Can you account for this discrepancy between the Floras and my experience? I should like to know whether any reader of the 'Phytologist' has ever met with the same occurrence. T. W. G.

[In the latest edition of Steudel's 'Nomenclator' *Echium violaceum* is marked as annual; also in Kittel's 'Deutschland's Flora' and in Loudon's 'Encyclopædia of Plants.' Annual plants may accidentally become biennials, and *vice versâ*. The terms are not definite. A biennial will, under some circumstances, flower the same year in which it is sown. *Lupinus polyphyllus* has been known to do so, and it is a perennial. Annual plants, wheat for example, may be both annual and biennial.]

Portland Sago.—Will any Dorsetshire correspondent be so obliging as to give us some information about Portland Sago? We should like to know if it is still manufactured in Portland Island; and if so, whether the roots be cultivated or wild; also, what portion of the entire produce is sent to London, and where it is to be procured genuine in the said city.

We should like to ask another question, viz. whether a given area of ground cultivated with this acrid root—say an acre—would yield half as much in weight as a similar area of land cultivated with Potatoes? And further, whether there be any evidence that the produce would be as palatable and nutritious as the Potato? EDITOR.

Autumnal Inflorescence of Willows.—In reply to your inquiry in the last 'Phytologist,' I beg leave to state that I have observed *Salix triandra* in flower late in the autumn (of 1854) on the banks of the Codbeck, between Thirsk and Kilvington. The catkins did not differ materially from those produced at the regular period. JOHN H. DAVIES.
Thirsk, February, 1856.

Hieracium iricum.—We understand from Mr. More that the alpine *Hieracium*, which was called *cerinthoides*, belongs not to that species but to *H. iricum*, of which it is a small state very like *H. Lawsoni* of Smith.

Definition of Species.—The best definition of Species which I have seen is in Sir C. Lyell's 'Principles of Geology;' but I am not able to abridge it. It will be found running from page 566 to page 705 of the ninth edition. W. C.

Extract from a Letter.—In the country we can admire the works of God in creation. The Lord is always at work: no sooner has the flower faded but preparation is made for the next year. My *Fraxinella* (*Dictamnus albus*) has even now, December the 24th, buds already formed; and in March the buds of the Grape Vine, closely viewed with the help of an ordinary microscope, appear inimitably beautiful. As these buds gradually swell, they are found to be enwrapped or invested in silken cases of all shades of bright red, yellow, etc. . . . I am persuaded the best time to remove *Orchises*, of which we have so many here in Kent, is after they have done flowering, and when the roots are preparing, or rather are ready prepared, for the next year. H. B.

Exchange of British Plants.—Sir,—I should be obliged by your including my name in the list of those desirous of exchanging British plants ('Phytologist,' November). J. B. MONTGOMERY, M.D.

Penzance, Cornwall, November 3, 1856.

Sir,—I will thank you to place my name and address among the Botanists who are desirous of effecting exchanges in British plants, particularly Mosses, Hepaticæ, Lichens, Algæ, etc., in the pages of the 'Phytologist. J. MILES.

Hurstpierpoint, Sussex.

Communications have been received from

Rev. H. A. Stowell; "Bristol;" W. P.; Rev. W. M. Hind; J. B. Montgomery, M.D; J. G. Baker; William Mitten, A.L.S.; Miss E. Hodgson; J. Miles; A. J.; Dr. W. Lindsay; P. H.

END OF VOLUME THE FIRST.

A

GENERAL INDEX TO THE PHYTOLOGIST,

From its Commencement in June, 1842, *to July,* 1854, *inclusive;*

WITH AN

INDEX OF CONTRIBUTORS.

[*Note.*—The Roman numerals indicate the volume or series of volumes with consecutive pagination: for example, i. represents the volume or series published between June, 1842, and November, 1844, or 1144 pages; ii. represents the next series, viz. from January, 1845, to the end of the year 1847, viz. 1052 pages; iii. refers to the series for 1848–49–50, or 1120 pages; the iv. refers to the series for 1851–52–53, or 1160 pages; v. represents the portion from January to July, 1854, inclusive, with the supplemental number, or 240 pages. The Arabic numerals refer to the pages of the respective series.]

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P.S. We hereby beg respectfully to inform the readers of the 'Phytologist'—all those who use both the Old and the New Series—that it is our intention to publish as a Supplement to the Index now finished such omissions as we may observe; and we shall be obliged to our correspondents and others to point out such as they may notice, in order that our Index to the work may be as complete as possible.

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